Final Report to CMS – 10th Statement of Work (10SOW) Special Innovations Project

**Enhancing Coordination of Behavioral Health Services after Superstorm Sandy:
Planning for Future Disasters**
Contract Number: HHSM-500-2011-NJ10C
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Executive Summary or Abstract

Importance Medicare beneficiaries, when victims of natural disasters, are at an elevated risk of acute or chronic mental health issues such as post-traumatic stress disorder, depression, and suicide. They also have an increased risk of isolation and breakdown in the continuum of care.

Objective(s) The focus of quality improvement activities in this project was to create and use data profiles in selected areas in New Jersey affected by Superstorm Sandy to spur community action and create public awareness of the Medicare depression screening benefit.

Design, Setting, Participants HQSI analyzed the prevalence and incidence of behavioral health conditions and utilization of health services for Medicare Fee-for-Service (FFS) beneficiaries in the 10 FEMA-declared disaster counties and 10 selected communities from before (January 2011 – September 2012) and during/after (October 2012 – December 2013) the storm. Prevalence and risks of depression and proxy disorders were analyzed to identify communities for intervention. Data profile development, coupled with a community capacity building approach, was used to create public awareness of the depression screening benefit and promote the coordination of behavioral services in the 10 selected communities.

Intervention County and community data profiles were developed to help health care professionals learn more about the behavioral health status and health care utilization patterns of Medicare FFS beneficiaries before and after Superstorm Sandy. Medicare FFS claims and other publicly available data were used to create county and community profiles. HQSI encouraged profile use as a tool to help communities become self-directed as they begin or continue to develop, pilot, and implement disaster-planning activities that lead to better care continuity and services for beneficiaries with chronic behavioral health issues and those at risk for depression.

Main Outcome Measures The primary outcome measure was the depression screening rate per 1,000 Medicare FFS beneficiaries and the secondary measure was the level of community engagement/support for this project.

Results After the storm there was a 12.2% increase in PTSD, a 10.6% increase is alcohol or substance abuse, a 7.8% increase in anxiety disorders, and a 2.4% increase in depression or proxy disorders. Populations with higher rates of depression or proxy disorders were found for females, Hispanics, and beneficiaries below age 65. Depression screening increased from 4.81 per 1,000 Medicare FFS beneficiaries in calendar year 2012 to 12.03 per 1,000 in 2013. Prevalence of behavioral health conditions varied by county. Lack of access to health services was found after the storm as psychiatric diagnostic procedures and individual psychotherapy, the two most utilized outpatient behavioral health services, along with other important inpatient and outpatient services, experienced decreases in nearly every county after the storm. Project success was shown in that (1)the data profiles have been used by local leaders in behavioral health planning and (2) there is heightened awareness of the need for enhanced coordination of behavioral health services at the local level.

Conclusions and Relevance
The increase in the prevalence of behavioral health conditions coupled with the lack of access to health services highlight the need for additional project time for: (1) the data to mature to allow for examination of long term effects and trends over time, and (2) the communities to trust build trust among themselves and then work collaboratively to track the data and use it to enhance coordination of behavioral health services

<u>The purpose of the project</u>
On October 29, 2012, Superstorm Sandy hit the Eastern seaboard, impacting more than a dozen states. It was a record-setting storm in terms of its geographic dimensions and was the largest storm of its kind to hit the East Coast of the United States. Residents in 24 states experienced varying effects of the storm including wind, rain, flood, coastal surge, and blizzard conditions.

New Jersey, which took the brunt of the storm along its densely populated coastline, was devastated. According to a report from Rutgers University, the total cost of damages in New Jersey exceeded $37 billion. There were over 325,000 housing units damaged totaling $5.9 billion and damage to business structures and loss of sales or revenue totaling $3.56 billion (Halpin, 2013).

After a disaster strikes, the physical consequences such as damage, mortality, destruction, disruption, and displacements are often evident and observable. However, psychological consequences of a disaster tend to be less visible and overlooked. Yet these consequences can be widespread, extending across a varying spectrum of severity, and can persist for a long duration, as seen in New Orleans's six years after Hurricane Katrina (Shultz, 2013 and Dallas, 2014).

Elderly victims are more significantly impacted by a disaster than the non-elderly. Residents who are socially isolated and have impaired mobility and/or multiple chronic illnesses may be compromised in their ability to respond and recover effectively. Elderly individuals who rely on regular medications, medical treatments, nursing care, and provisions from volunteer agencies are particularly vulnerable (Fernandez et al; 2002).

In the event of a storm, elderly residents may be subjected to frequent and stressful residential changes, may not have health needs adequately met, and may experience psychological distress. Disaster related events such as loss of property, displacements, relocations, or loss of personal finances can elevate the risk of behavioral health problems, such as post-traumatic stress disorder (PTSD) and depression. Disasters like Superstorm Sandy can also increase general distress, anxiety, and other psychiatric disorders (Neria and Shultz, 2012). Elderly victims with predisposing behavioral health conditions are at greater risk for deteriorating health, increased risk of isolation, and breakdown in the continuum of health care (Voelker, 2006).

Additionally, literature from major disasters also indicated that depression is often widespread following such events, even among the community-dwelling elderly (those who reside in non-institutional housing). At a discussion on March 8, 2013 focusing on behavioral health care after Superstorm Sandy, Debra L. Wentz, the Chief Executive Officer of the New Jersey Association of Mental Health and Addiction Agencies, reported that six months after the storm is when people started to realize that things may never return to normal and "that's when anxiety and depression is the greatest risk."

According to the National Alliance on Mental Illness, it is estimated that depression affects more than 6.5 million of the 35 million Americans aged 65 or older. Many elderly people and their families don't recognize the symptoms of depression and overlook the psychological factors of a disaster. Unlike other conditions, behavioral health issues are often underdiagnosed and the stigma associated with behavioral health conditions may prevent residents from seeking care. It
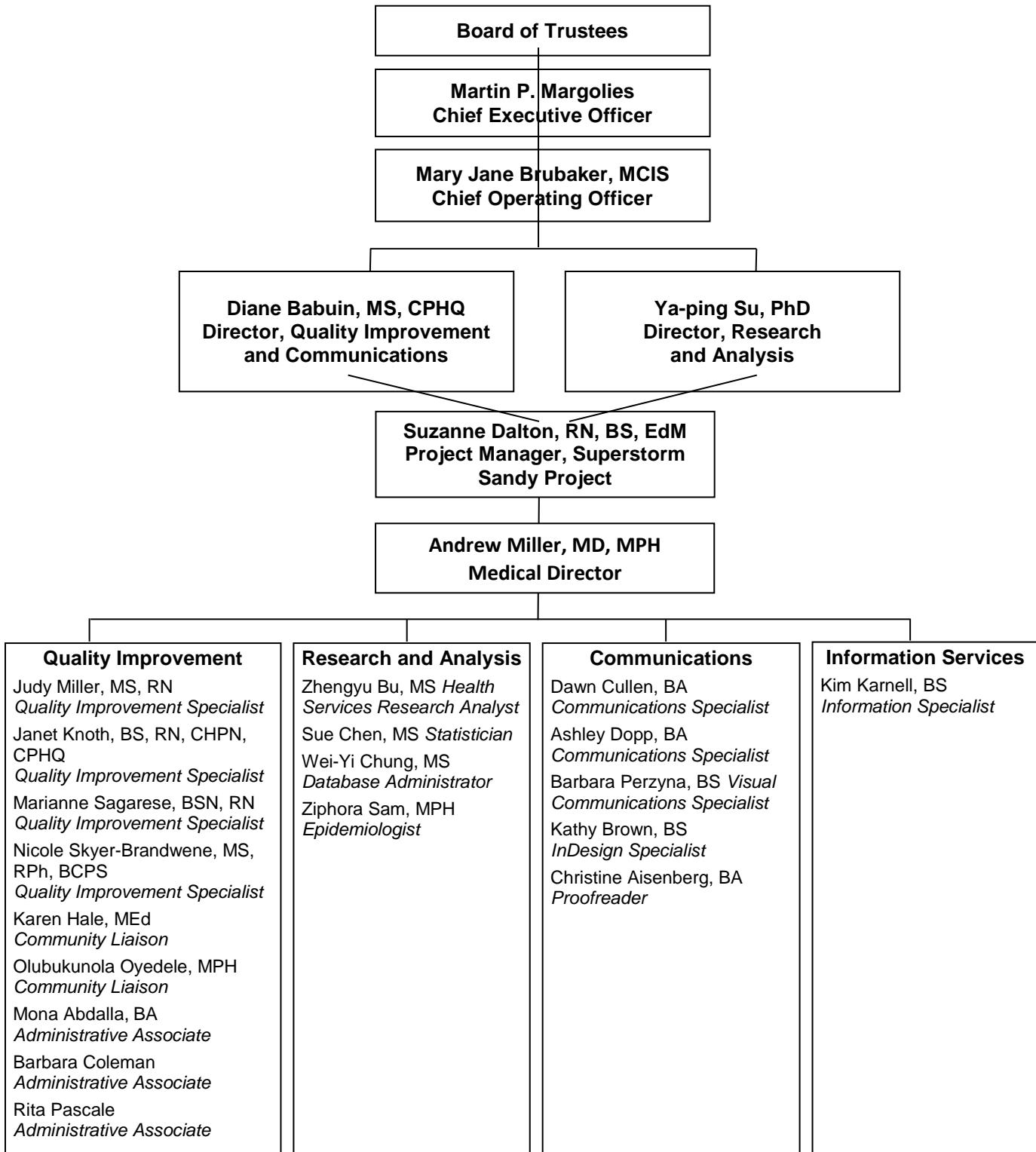
is important to analyze and address the psychological needs of the elderly before, during, and after a storm or a disaster. Early intervention would improve the quality of life for the elderly at risk and potentially reduce long term health care costs (Derek, 2013).

In October 2011, the Centers for Medicare & Medicaid Services (CMS) made depression screening a Medicare-covered Part B service.[1] The depression screening benefit is an annual screening of up to 15 minutes conducted by clinical staff, such as a nurse or physician assistant, in primary care settings. Clinical staff communicates screening results to the physician and coordinates referrals to mental health treatment.

This project had two primary components: (1) development of county and community profiles to assess the impact Superstorm Sandy had on behavioral health conditions and utilization of health services and (2) development and implementation of a community capacity building initiative designed to introduce the profiles as a resource for enhancing coordination of behavioral health services, with particular emphasis on increasing utilization of the Medicare-covered depression screening benefit. The results from this analysis were disseminated through county and community data profiles, which were designed to help health care professionals learn more about the behavioral health status and health care utilization patterns of Medicare FFS beneficiaries before and after Superstorm Sandy. As such, the data can be a useful tool in planning for future disasters and to spur action in communities.

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[1] http://www.cms.gov/medicare-coverage-database/details/nca-decision-memo.aspx?NCAId=251

Superstorm Sandy Team Members and Organization Chart

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Questions the project attempted to answer

1. What impact did Superstorm Sandy have on behavioral health among Medicare FFS beneficiaries?
    o Which behavioral health conditions were more likely to increase after a natural disaster?
    o What were the prevalence rates of these selected behavioral health conditions before and after the storm?
    o What were the incidence rates of these selected behavioral health conditions before and after the storm?
    o Was there an increase in selected behavioral health conditions after the storm?
2. Given the fact that previous studies have highlighted the impact of natural disasters on depression, what areas of NJ were at higher risk for depression after the storm?
    o What were the risk factors for depression or proxy disorders?
    o Where was the population at greater risk of depression or proxy disorders ?
    o What were the depression screening rates before and after the storm?
3. What impact did Superstorm Sandy have on utilization of health services among Medicare FFS beneficiaries for the following:
    o Behavioral health outpatient services
    o Other health services in both inpatient and outpatient settings
4. Where were the communities at greater risk? Specifically, where were the communities at high risk for depression or proxy disorders that also had low depression screening rates and low behavioral health outpatient service utilization?
5. Using a data driven approach coupled with methodologies from community capacity building, can we successfully introduce the profiles to the targeted counties and communities, guide profile utilization, and create public awareness of the project with a focus on the Medicare depression screening benefit?

The project setting including the community, the population, etc.

Study Population
This project included Medicare FFS beneficiaries residing in New Jersey's 10 FEMA-declared disaster counties after Superstorm Sandy. These counties included Atlantic, Bergen, Cape May, Essex, Hudson, Ocean, Middlesex, Monmouth, Somerset, and Union Counties. HQSI included all beneficiaries who were between 18 and 109 years old who were enrolled in Medicare FFS for at least one day during the measurement time period. There were 822,505 Medicare FFS beneficiaries residing in the 10 counties before the storm.

Selecting Communities
HQSI selected a subset of 10 communities within the 10 FEMA-declared disaster counties. ZIP code-level geographic choropleth maps were used to identify affected counties and "hot spots" within the counties. Then, 10 communities were selected based on the following criteria: (1) high prevalence of Medicare FFS beneficiaries both with and at risk for developing depression or proxy disorders and (2) low utilization of the depression screening benefit in the 21 months before Superstorm Sandy. Appendix A shows the 10 communities' data for these criteria during the 21 months before Sandy.

<u>Level of community support for the project</u>
The level of county and community support varied throughout the project. New Jersey is a state of mostly small suburban communities with few large urban cities that have paid city resources (e.g. firemen, EMT services). However, local resources are limited and leaders often wear many hats. HQSI also learned that behavioral health services are planned and coordinated at the county level. Therefore, the counties were engaged at a higher level than the communities, which were still focused on recovery and rebuilding. More time, more recovery stability, and resources are needed to bring the community together and to establish a partnership that would focus on planning the coordination of services.

<u>All data used during the project</u>
As part of this project, HQSI did a retrospective analysis of the Medicare Part A and Part B claims data from January 2011 to December 2013. The claims data were used population-based prevalence and incidence estimates of eight selected behavioral health conditions, risk factors for depression or proxy disorders, the utilization rates of behavioral and non-behavioral health services, and demographic information.

Demographics
The Medicare enrollment database provided the basic demographic statistics such as age, gender, and race of the beneficiaries. Age was also categorized by beneficiaries below age 65, beneficiaries between ages 65 to 74, beneficiaries between ages 74 to 84, and beneficiaries at ages 85 and above. Race was categorized as White, Black, Hispanic, Asian, and Other, which included those who identified their race as other, unknown, and North American Native. The socioeconomic status of each county was determined using median household income information extracted from the U.S. Census Bureau for residents ages 65 and above.

Behavioral Health Conditions
The primary outcome of the study was to provide estimates for the prevalence and incidence of the eight selected behavioral health conditions. The conditions included: depression or proxy disorders, depression, anxiety disorders, adjustment disorders, PTSD, substance abuse, alcohol or substance abuse, and suicide and intentional self-inflicted injury. These conditions were selected based on literature review, which found that these conditions increase after natural disasters (Weiss et al; 2003 and Foa et al; 2006), as well as from the input of the subject matter experts[2] consulted for the project.

According to these experts, depression can be present with symptoms of anxiety and/or adjustment disorders, and depression is often underdiagnosed because of the stigma associated with behavioral health conditions. Based on this feedback, a combination measure named "depression or proxy disorders" was created to better estimate the prevalence and incidence of depression in the population. If a patient had at least one of these three conditions (depression, anxiety disorders, or adjustment disorders) reported in claims, he/she was flagged as having depression or proxy disorders.

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[2] Key stakeholders from 11 state organizations with expertise in behavioral health and/or disaster preparedness.

The conditions were classified by matching the ICD-9-CM (International Classification of Diseases, Ninth revision, Clinical Modification) codes from the Medicare Part A (inpatient) and Part B (outpatient) claims to the Clinical Classification Software (CCS) from the Agency for Healthcare Research and Quality and to the Chronic Condition Warehouse (CCW) database (H-CUP and Buccaneer, 2013).

The numerator for the prevalence was the number of unique beneficiaries having an inpatient or outpatient claim with a specific diagnosed condition during the measurement time frame. In Part A claims, there are 25 diagnosis coding fields while Part B has 12 diagnosis fields. The ICD-9 codes from these fields were used to classify and identify the conditions. Prevalence was measured annually with rolling quarters from January 2011 to December 2013. The rates from the year before Superstorm Sandy were compared to the rates after Superstorm Sandy.

The denominator was the total number of eligible beneficiaries in the county, after adjusting for the total enrolled FFS days during the timeframe. This adjustment was done because duration of beneficiaries' FFS coverage varies and it ensures that the beneficiary is only observed for the time that they had coverage (i.e. person-time contributed to the study). Thus, the eligible beneficiaries were computed by dividing the total number of eligible FFS days by the total number of days in the measurement time frame.

Quarterly incidence rates for the eight selected conditions were also computed in order to determine new cases. For this measurement, quarterly incidence rates were computed using the number of new cases reported in a quarter divided by the total number of eligible beneficiaries. New cases (incidences) were defined as cases where there were no claims associated with the condition in the prior 12 months for the beneficiary. Incidence was measured quarterly starting from January 2012 to December 2013.

Risk Factors for Depression or Proxy Disorders
Furthermore, in order to identify beneficiaries at risk of developing depression or proxy disorders, HQSI initially conducted a literature review on the potential risk factors for depression or proxy disorders (Appendix B). Previous studies suggested that psychosocial factors, biological factors, deteriorating physical functioning, and medication side effects could increase the risk of depression or proxy disorders.

Multivariate logistic regression models were used to predict the likelihood of developing depression or proxy disorders based on findings from the literature review and factors available through Medicare claims data. The top-five, statistically-significant risk factors with the highest Odds Ratio (OR) ($p<0.001$) were identified. These risk factors were: Alzheimer's disease and related disorders or senile dementia, sleep disturbance, substance or alcohol abuse or tobacco use, hip/pelvic fractures, and amputations.

These risk factors were reported prior to the diagnosis of depression or proxy disorders which indicates temporal precedence or, that it is possible these conditions lead to depression (*Hills Criteria of Causation*, Lucas and McMichael, 2005). Appendix C shows the odds ratios (OR) and the 95% confidence intervals for all the variables included in the final model.

Behavioral Health Service Utilization
HQSI analyzed the county utilization rate of five behavioral health assessment services and five behavioral health therapies that are covered by Medicare Part B. The assessment services included: depression screening, psychiatric diagnostic procedures, neuropsychological tests, diagnostic psychological tests, and health and behavior assessment/intervention. The therapies included: individual psychotherapy, family psychotherapy, group psychotherapy, electroconvulsive therapy, and biofeedback therapy. Beginning October 2011, annual depression screening became a Medicare-covered service. The first quarter of data in this analysis for depression screening starts on January 2012 since there were only 14 claims filed in the last quarter of 2011 in all 10 counties. These services were classified by analyzing the Current Procedural Terminology (CPT) or Healthcare Common Procedure Coding System (HCPCS) codes in the Medicare Part B line files, which gives detailed records of the base claim. The utilization rates for inpatient psychiatric facilities were also computed.

Non-Behavioral Health Service Utilization
Additionally, this study looked at the utilization of non-behavioral health services since beneficiaries with underlying behavioral health conditions may seek other services due to medical problems caused by their behavioral health conditions, or because they may want to avoid utilizing behavioral health services all together. These measures are often used as a proxy indicator of care coordination. They included: acute care hospital admission, emergency department visits, observation stays, inpatient psychiatric hospital admissions, 30-day hospital readmission rates, emergency department visits that occurred within 30 days of discharge, and observation stays that occurred within 30 days of discharge. Emergency department visits that occurred within 30-days of discharge were measured with or without subsequent hospital admissions and 30-day observation stays were measured with or without subsequent hospital admissions. Additionally, the study looked at the utilization of home health agency, skilled nursing facility, hospice, and medical rehabilitation services.

Analysis
Descriptive statistics were used to define and break down the population of interest's demographics. These statistics included computed county-specific rates and the pooled 10 county rates which allowed for comparison. The prevalence, incidence, and utilization measures were calculated using a per 1,000 Medicare FFS beneficiaries rate. The prevalence and utilization trend rates were measured annually with rolling quarters from January 2011 to December 2013. For comparison, the measure included data sets from October 2011 to September 2012, which defined the year before Superstorm Sandy, as well as data from January 2013 to December 2013, the year after Superstorm Sandy. Then the relative percent change between the two time frames was computed. Incidence was measured quarterly starting from January 2012 to December 2013.

Data analysis was done using SAS software version 9.2. and the ZIP code-level geographic choropleth maps were generated using QGIS software version 2.0.1. This paper summarizes the rates before and after the storm and the regional variations among the counties. The full data profiles can be found at: www.HQSI.org.

<u>The trend of the project measures over the time of the project</u>

Demographics

Table 1 presents the overall demographic distribution of the Medicare FFS beneficiaries in the 10 counties, which includes beneficiaries who had Medicare FFS coverage for at least one month during the given timeframe. Therefore, in the year before Superstorm Sandy, there were 822,505 eligible Medicare FFS beneficiaries in the 10 counties. After the storm, the population was decreased to 803,020. The distribution by various demographic groups remained fairly stable in the two annual time periods presented, with about 80% of the Medicare FFS beneficiaries in the 10 disaster counties being White and 11% being Black. Females represented 57% of the population and the largest number (46%) of beneficiaries was between ages 65 to 74 years old.

Table 1: General Demographic Distribution of Medicare FFS Beneficiaries in the 10 New Jersey Superstorm Sandy FEMA Counties*				
	Before: October 2011 – September 2012		After: January 2013 – December 2013	
	Number of beneficiaries*	Percent (%)	Number of beneficiaries*	Percent (%)
Race				
White	649,461	78.96%	631,144	78.60%
Black	90,470	11.00%	86,387	10.76%
Hispanic	28,640	3.48%	27,034	3.37%
Asian	25,838	3.14%	25,873	3.22%
Other	28,096	3.42%	32,582	4.06%
Gender				
Males	355,994	43.28%	349,468	43.52%
Females	466,511	56.72%	453,552	56.48%
Age				
Below 65	105,813	12.86%	100,785	12.55%
65 – 74	367,891	44.73%	368,422	45.88%
75 - 84	222,519	27.05%	212,613	26.48%
85 and above	126,282	15.35%	121,200	15.09%
Total	**822,505**	**100.00%**	**803,020**	**100.00%**

*Beneficiaries who were under Medicare FFS coverage for at least one month during the timeframe. Age calculated as of the last day of the measurement time period

Among the 10 counties, the average age ranged from 70.95 to 73.92. There were also notable variations among racial groups and median household incomes among adults 65 and older (Appendix D). Essex, Hudson, and Union Counties were the three counties with the highest minority population (more than 30%) after the storm. Both Essex and Hudson Counties had higher minority beneficiary populations and also had the lowest median household income among adults 65 and older. However, counties such as Ocean and Cape May with low proportions of (5%) minority beneficiaries, also ranked low on household income among adults 65 and older.

Behavioral Health Conditions
The most prevalent behavioral health condition among all 10 counties was depression or proxy disorders, followed by depression (Table 2). Of the selected behavioral health conditions analyzed in the 10 counties, PTSD (12.20%) had the highest relative increase followed by alcohol or substance abuse (10.55%) and anxiety disorders (7.77%). Anxiety disorders also showed the greatest absolute increase (8.21 per 1,000 beneficiaries) among Medicare FFS beneficiaries. This large increase also helped to drive up the rate of the depression or proxy disorders combination measure by 2.41%.

Table 2. Prevalence of Selected Behavioral Health Conditions
per 1,000 Medicare FFS beneficiaries in the 10 NJ Superstorm Sandy FEMA Counties

Conditions	Before: October 2011 – September 2012	After: January 2013 – December 2013	Absolute Change in Rates	Percent Change*
Depression or Proxy Disorders	192.99	197.65	4.66	2.41%
- Depression	124.72	125.36	0.64	0.51%
- Anxiety Disorders	105.70	113.91	8.21	7.77%
- Adjustment Disorders	29.82	29.09	-0.73	-2.45%
Alcohol or Substance Abuse	30.51	33.73	3.22	10.55%
- Substance Abuse	16.71	17.54	0.83	4.97%
PTSD	4.18	4.69	0.51	12.20%
Suicide and Intentional Self-inflicted Injuries	4.40	4.39	-0.01	-0.23%

*percent change = (current rate-former rate)/former rate

Depression or Proxy Disorders
Table 3 shows the prevalence of beneficiaries diagnosed with depression or proxy disorders by race, gender, and age in all 10 counties. During the year before Superstorm Sandy, 192.99 per 1,000 beneficiaries in all 10 counties were diagnosed with depression, anxiety disorders and/or adjustment disorders. After the storm, the rate increased to 197.65 per 1,000 beneficiaries, which was a 2.41% overall increase. Females had higher prevalence than males (229.01 vs 145.3 per 1000) before the storm and had a larger increase in these disorders after the storm.

Significant variations were also observed among minority beneficiaries with Hispanics having the highest prevalence both before and after the storm (242.11 and 231.28 per 1,000 beneficiaries respectively). The prevalence of diagnosed depression or proxy disorders was lowest among Asians, both before and after the storm. Whites had the second highest prevalence rates both before and after the storm and also experienced the highest increase in depression or proxy disorders after the storm.

The youngest age group (below 65) had the highest rates of depression or proxy disorders followed by the oldest age group (85 and above), both before and after the storm. The oldest age group also experienced the highest absolute increase in the rate of this combination measure (12.9 per 1,000).

Additional results on the annual prevalence and quarterly incidence of depression or proxy disorders can be found in Appendix E and F respectively. Rates of the top five risk factors for

depression or proxy disorders were fairly stable during the two time frames except for substance or alcohol abuse or tobacco use (Appendix G).

	Before: October 2011 – September 2012			After: January 2013 – December 2013				
	Numerator	Denominator*	Rate per 1,000	Numerator	Denominator*	Rate per 1,000	Absolute Change	Change[+]
Race								
White	120,188	593,619	202.47	124,206	592,329	209.69	7.2	3.6%
Black	13,042	79,477	164.10	12,830	78,607	163.22	-0.9	-0.5%
Hispanic	5940	24,534	242.11	5534	23,928	231.28	-10.8	-4.5%
Asian	1,809	22,663	79.82	1,951	23,605	82.65	2.8	3.5%
Other	2,702	24,228	111.52	3,115	28,479	109.38	-2.1	-1.9%
Gender								
Males	46,561	320,441	145.30	47,919	323,760	148.01	2.7	1.9%
Females	97,120	424,080	229.01	99,717	423,188	235.63	6.6	2.9%
Age								
Below 65	31,596	92,545	341.41	30,902	90,937	339.82	-1.6	-0.5%
65-74	43,892	328,075	133.79	47,002	337,733	139.17	5.4	4.0%
75-84	38,259	210,377	181.86	38,522	205,423	187.53	5.7	3.1%
85 and +	29,934	113,524	263.68	31,210	112,855	276.55	12.9	4.9%
Total	**143,681**	**744,521**	**192.99**	**147,636**	**746,948**	**197.65**	**4.7**	**2.4%**

Table 3. Depression or Proxy Disorders Rate per 1,000 Medicare FFS Beneficiaries in 10 NJ Superstorm Sandy FEMA Counties

*Total eligible beneficiaries computed after adjusting for total enrolled FFS days
[+]percent change = (current rate-former rate)/former rate

County variations in rates of depression of proxy disorders were found prior to the storm (Table 4). Before the storm, Hudson County had the highest prevalence of depression or proxy disorders among all 10 counties. After the storm, it was Ocean County. Ocean County also had the highest rate of anxiety disorders both before and after the storm, as well as a 13.64% increase in anxiety disorders post-Sandy. Hudson County had the highest rate of depression and Monmouth County had the highest rate of adjustment disorders both before and after the storm.

Table 4. 12-month Prevalence rate per 1,000 of Depression or Proxy Disorders Before (October 2011 – September 2012) and After (January 2013 – December 2013) Superstorm Sandy by County

County	Depression or Proxy Disorders			Depression			Anxiety Disorders			Adjustment Disorders		
	Before	After	Change*	Before	After	Change*	Before	After	Change*	Before	After	Change*
Atlantic	204.9	210.1	2.5%	126.7	125.4	-1.0%	122.9	128.8	4.9%	30.3	30.3	0.0%
Bergen	184.1	192.6	4.6%	123.6	127.5	3.1%	96.8	106.8	10.4%	26.5	27.4	3.1%
Cape May	208.7	204.8	-1.9%	125.9	118.7	-5.7%	124.0	125.2	0.9%	24.8	23.8	-3.9%
Essex	184.2	183.0	-0.7%	119.6	115.4	-3.5%	88.2	94.0	6.6%	36.8	34.2	-7.1%
Hudson	211.7	211.0	-0.3%	138.3	136.5	-1.3%	117.4	120.4	2.6%	32.6	31.6	-3.0%
Middlesex	180.9	184.8	2.2%	117.8	118.8	0.9%	96.0	103.5	7.8%	25.5	25.9	1.4%
Monmouth	207.0	209.2	1.1%	133.3	133.1	-0.2%	114.4	119.5	4.4%	39.2	37.3	-4.8%
Ocean	208.9	221.0	5.8%	131.7	136.0	3.3%	125.6	142.7	13.6%	28.9	26.3	-9.0%
Somerset	177.2	181.4	2.4%	114.7	116.8	1.8%	95.4	102.3	7.3%	28.4	29.3	3.3%
Union	171.8	175.6	2.2%	111.5	111.5	0.0%	91.5	98.2	7.2%	21.9	22.7	3.7%
10 Counties	193.0	197.7	2.4%	124.7	125.4	0.5%	105.7	113.9	7.8%	29.8	29.1	-2.4%

*percent change = (current rate-former rate)/former rate

Alcohol or Substance Abuse, PTSD, and Suicide and Intentional Self-Inflicted Injuries
Tables 5 and 6 show the regional variations in the diagnosis rates of alcohol or substance abuse, substance abuse alone, PTSD, and suicide and intentional self-inflicted injuries. In the year before the storm, Atlantic County had the highest prevalence of beneficiaries diagnosed with either alcohol or substance abuse and suicide and intentional self-inflicted injuries. After the storm, Ocean County had the highest prevalence of alcohol or substance abuse as well as the highest increase (19.13%) in this condition. After the storm, Essex County had the highest prevalence of substance abuse while Ocean County had the highest prevalence in PTSD. Additional results on the annual prevalence and quarterly incidence of these conditions in the 10 counties can be found in Appendix H and I respectively.

Table 5. 12-month Prevalence rate per 1000 of Alcohol or Substance Abuse Before (October 2011 – September 2012) and After (January 2913 – December 2013) Superstorm Sandy by County

County	Alcohol or Substance Abuse			Substance Abuse alone		
	Before	After	% Change*	Before	After	% Change*
Atlantic	42.98	39.76	-7.5%	25.26	22.18	-12.2%
Bergen	19.75	23.40	18.5%	9.88	11.80	19.4%
Cape May	40.37	37.25	-7.7%	20.11	17.20	-14.5%
Essex	38.62	38.46	-0.4%	22.96	23.96	4.4%
Hudson	31.87	36.71	15.2%	16.46	17.31	5.2%
Middlesex	25.52	28.73	12.6%	14.52	15.36	5.8%
Monmouth	34.42	39.88	15.9%	17.34	18.07	4.2%
Ocean	35.33	42.09	19.1%	20.67	22.36	8.2%
Somerset	26.92	31.13	15.6%	14.88	16.35	9.9%
Union	24.24	26.02	7.3%	12.13	12.68	4.5%
10 Counties	30.51	33.73	10.6%	16.71	17.54	5.0%

*percent change = (current rate-former rate)/former rate

Table 6. 12-month Prevalence rate per 1000 of PTDS and Suicide and Intentional Self-inflicted Injuries Before (October 2011 – September 2012) and After (January 2013 – December 2013) Superstorm Sandy by County

County	PTSD			Suicide and Intentional Self-Inflicted Injuries		
	Before	After	% Change*	Before	After	% Change*
Atlantic	5.32	5.51	3.6%	6.47	6.06	-6.3%
Bergen	2.56	2.51	-2.0%	3.46	3.56	2.9%
Cape May	5.57	6.59	18.3%	4.09	4.44	8.6%
Essex	3.66	4.47	22.1%	4.75	4.64	-2.3%
Hudson	3.28	3.48	6.1%	4.33	4.64	7.2%
Middlesex	4.65	5.43	16.8%	3.49	3.83	9.7%
Monmouth	5.15	5.84	13.4%	5.28	5.17	-2.1%
Ocean	5.86	6.70	14.3%	5.33	5.34	0.2%
Somerset	4.51	5.13	13.7%	3.87	4.18	8.0%
Union	2.48	2.67	7.7%	3.44	2.61	-24.1%
10 Counties	4.18	4.69	12.2%	4.40	4.39	-0.2%

*percent change = (current rate-former rate)/former rate

Utilization of Outpatient Behavioral Health Services
The assessment services covered by Medicare Part B services included: depression screening, psychiatric diagnostic procedures, neuropsychological tests, diagnostic psychological tests, and health and behavior assessment/intervention. The therapies included: individual psychotherapy, family psychotherapy, group psychotherapy, electroconvulsive therapy, and biofeedback therapy. Among the outpatient behavioral health services examined, the two most used services were psychiatric diagnostic procedures and individual psychotherapy (Table 7). There was a 14.45% decrease in the use of psychiatric diagnostic procedures after the storm and a 2.73% decrease in the use individual psychotherapy. The other therapies reimbursed by Medicare were not

commonly used and had minimal absolute changes after the storm. There was also a relative increase in the use of depression screening and neuropsychological tests after the storm.

Table 7. Utilization of Outpatient Behavioral Health Services
Before and After Superstorm Sandy for the 10 FEMA Disaster Counties

	Before	After	Absolute Change	% Change*
Assessment				
Depression Screening	4.81	12.03	7.22	150.10%
Psychiatric Diagnostic Procedures	53.41	45.69	-7.72	-14.45%
Neuropsychological Tests	9.48	10.85	1.37	14.45%
Diagnostic Psychological Tests	4.39	4.61	0.22	5.01%
Health and Behavior Assessment/Intervention	0.65	0.66	0.01	1.54%
Therapy				
Individual Psychotherapy	54.56	53.07	-1.49	-2.73%
Family Psychotherapy	3.43	2.42	-1.01	-29.45%
Group Psychotherapy	2.98	2.71	-0.27	-9.06%
Biofeedback Therapy	0.68	0.68	0.00	0.00%
Electroconvulsive Therapy	0.47	0.46	-0.01	-2.13%

*percent change = (current rate-former rate)/former rate

One of the long-term goals of this project was to increase awareness and use of the Medicare-covered depression screening benefit among Medicare FFS beneficiaries residing in the 10 counties. As shown in Figure 1, the utilization rate of this screening increased from 4.81 in 2012 to 12.03 per 1,000 Medicare FFS beneficiaries in 2013, reflecting an increase of more than 7 per 1,000 Medicare FFS beneficiaries. Cape May County had the lowest depression screening rate in 2012 as well as the smallest increase after the storm in 2013. Ocean County had the highest utilization rate of depression screening in 2012; after the storm Somerset County had the highest rate. Atlantic County had the greatest increase in the utilization of depression screening benefit, from 1.12 to 11.61 per 1,000 Medicare FFS beneficiaries, reflecting a nine-fold increase from its 2012 rate.

Quarterly utilization rates for depression screening in the 10 counties (Figure 2) also showed a steady increase from the first quarter of 2012 to the fourth quarter of 2013.

Figure 1. Annual Depression Screening per 1,000 Medicare FFS Beneficiaries

County	Jan 12-Dec 12	Jan 13 –Dec 13
Somerset	7.11	23.76
Ocean	9.5	16.27
Monmouth	4.72	13.97
Bergen	4.33	12.04
10 counties	4.81	12.03
Atlantic	1.12	11.61
Middlesex	7.51	11.39
Hudson	2.83	9.95
Union	3.02	9.2
Essex	0.83	5.91
Cape May	0.65	0.92

Figure 2. Quarterly Depression Screening per 1,000 Medicare FFS Beneficiaries in the 10 Counties

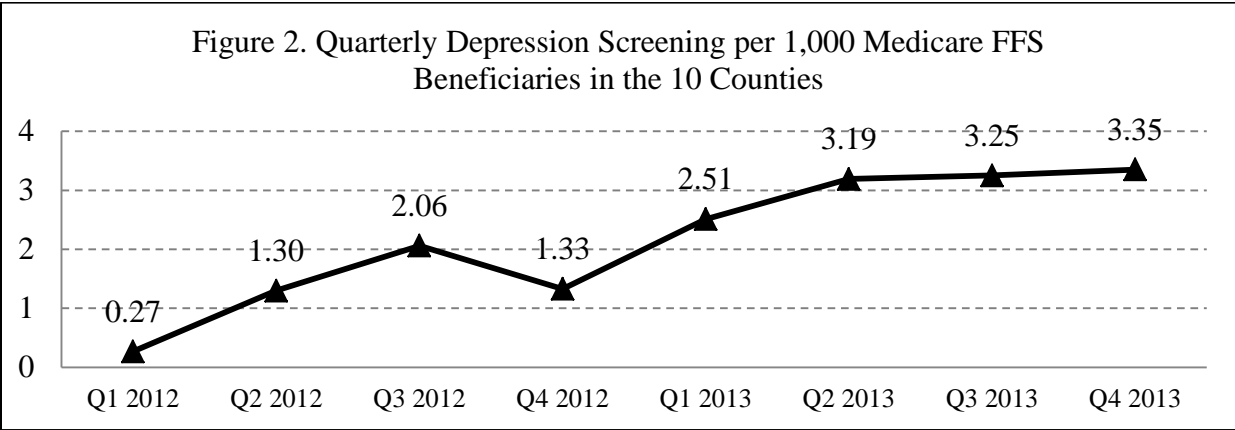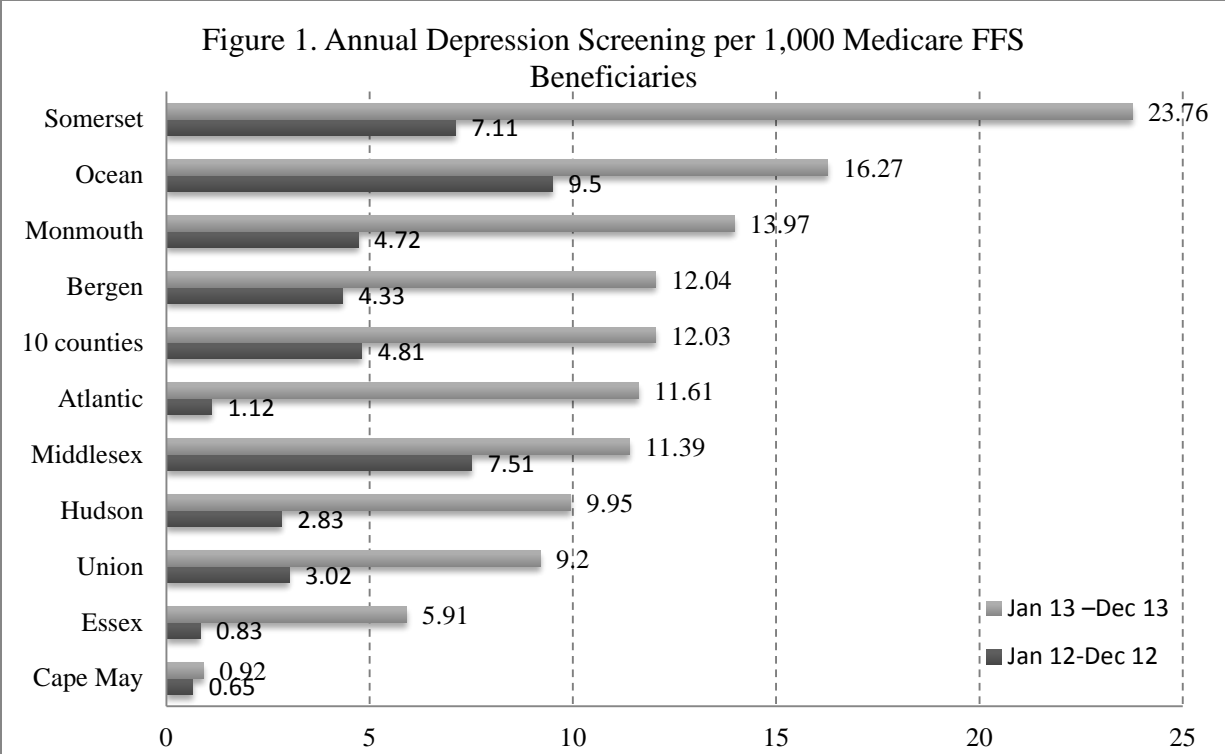| Quarter	Value
Q1 2012	0.27
Q2 2012	1.30
Q3 2012	2.06
Q4 2012	1.33
Q1 2013	2.51
Q2 2013	3.19
Q3 2013	3.25
Q4 2013	3.35

Table 8 shows the rates of the most frequently used behavioral health assessment services and therapies. All counties had a relative decrease in psychiatric diagnostic procedures after Sandy. Both before and after the storm, Union County had the lowest utilization of psychiatric diagnostic procedures and Monmouth County had the highest. Cape May County had the lowest utilization rate for neurophysiological tests and individual psychotherapy, both before and after the storm.

Table 8. Utilization of Outpatient Behavioral Health Services per 1,000 Medicare FFS Beneficiaries

County	Psychiatric Diagnostic Procedures			Neuropsychological Tests			Individual Psychotherapy		
	Before	After	Change*	Before	After	Change*	Before	After	Change*
Atlantic	59.08	52.76	-10.7%	7.14	8.96	25.5%	52.03	47.85	-8.0%
Bergen	52.45	45.55	-13.2%	10.53	11.00	4.5%	62.92	61.52	-2.2%
Cape May	48.08	41.41	-13.9%	6.13	5.95	-2.9%	38.97	39.21	0.6%
Essex	58.52	53.37	-8.8%	8.31	9.05	8.9%	62.28	56.97	-8.5%
Hudson	50.84	45.13	-11.2%	16.9	17.34	2.6%	57.04	57.83	1.4%
Middlesex	48.20	40.15	-16.7%	7.83	8.94	14.2%	53.52	50.86	-5.0%
Monmouth	61.59	54.19	-12.0%	10.46	10.99	5.1%	53.59	52.00	-3.0%
Ocean	54.39	43.28	-20.4%	9.77	12.54	28.4%	48.83	52.21	6.9%
Somerset	47.59	40.21	-15.5%	7.20	11.45	59.0%	57.46	55.09	-4.1%
Union	46.97	37.01	-21.2%	6.75	9.28	37.5%	43.83	40.26	-8.1%
10 Counties	53.41	45.69	-14.5%	9.48	10.85	14.5%	54.56	53.07	-2.7%

*percent change = (current rate-former rate)/former rate

Utilization of Other Inpatient and Health Services in Other Settings
The utilization of additional health services was analyzed because beneficiaries with underlying behavioral health issues may seek non-behavioral health services and some of these measures are proxy indicators for care coordination. As shown in Table 9, all measures showed a decrease in utilization after the storm. The largest decrease was in the 30-day hospital readmission rates (16.83%), followed by inpatient psychiatric admissions (16.06%), and 30-Day Emergency Department Visit (13.38%). Acute care hospital admissions had the greatest absolute decrease (33.44 per 1000 beneficiaries) after the storm.

Table 9. Inpatient Health Service Utilization Per 1,000 Medicare FFS Beneficiaries in the Ten FEMA Disaster Counties in New Jersey

	Before	After	Absolute Change	Change*
Inpatient Psychiatric Admission	8.50	7.13	-1.36	-16.06%
Acute Care Hospital Admission	315.77	282.33	-33.44	-10.59%
30-Day Hospital Readmission	61.76	51.37	-10.39	-16.83%
30-Day Emergency Department Visit	74.31	64.36	-9.94	-13.38%
30- Day Observation Stays	7.28	7.16	-0.12	-1.61%

*percent change = (current rate-former rate)/former rate

Furthermore, as noted in Table 10, HQSI analyzed utilization of other services, such as home health agencies, skilled nursing facilities, hospice services, and medical rehabilitation services. There was a relative decrease in all these services after the storm in the 10 counties.

Table 10. Other Health Settings Utilization Per 1,000 Medicare FFS Beneficiaries

	Before	After	Absolute Change	Change*
Home Health Agency	90.62	85.02	-5.60	-6.18%
Skilled Nursing Facility	71.08	65.99	-5.09	-7.16%
Hospice Services	24.27	23.01	-1.25	-5.16%
Medical Rehabilitation	12.75	11.86	-0.89	-6.98%

*percent change = (current rate-former rate)/former rate

All interventions suggested

Building on its experience and expertise in developing community coalitions in the 9th and 10th Statements of Work, HQSI used a data-driven approach to create data profiles designed to promote the coordination of behavioral health services and build capacity in the 10 FEMA-declared disaster counties and 10 communities. Feedback from subject matter experts and stakeholders consulted for this project was solicited and incorporated into the profiles. Specifically, HQSI used the profiles to

- drive community-based depression screening efforts by increasing awareness of the Medicare-covered benefit and educate providers to proactively screen for such conditions; and
- introduce data to selected communities to use for targeting at risk populations for behavioral health assessment and interventions.

To facilitate community outreach and capacity building, HQSI utilized a framework based on Rethink Health[3] and Organizing for Health community building concepts. Community capacity building is a developmental approach that helps individuals and organizations realize goals and enhance abilities that will allow them to achieve measureable and sustainable results. Using this approach, HQSI planned to work with communities and counties to:

- Motivate participants to take actions that would reconsider and reassess the resource capacity of the community and make adjustments, as needed, to their strategic plan
- Identify and recruit leaders to help build community capacity and create change at the grassroots level with the long-term goal being the identification of leaders in each community and helping them recognize and use the unique talents of the individuals on their team
- Encourage community leaders to balance information on community needs and problems (e.g., lack of access to mental health providers, low depression screening rate) with information on community assets (e.g., a list of mental health providers in the area, Medicare-covered depression screening) and share that information with all affected groups
- Support efforts that lead to sustainable solutions, emphasizing leadership development, citizen participation, partnership with agencies and organizations, and community development

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[3] Recruitment: How do we Recruit Leaders? ReThink Health. 2012. http://rippelfoundation.org/ rpf-dev/wpcontent/uploads/2012/01/Recruitment-Guide-Organizingfor-Health.pdf Accessed on June 25, 2013

- Facilitate coordination with existing and appropriate state and stakeholder efforts and identify physician, facility, and other champions to help drive and sustain the goals

A component of the project was to develop and implement a community capacity building initiative designed to introduce the profiles as a resource for enhancing coordination of behavioral health services, with particular emphasis on increasing utilization of the Medicare-covered depression screening benefit. At project initiation, HQSI's team[4] convened a subject matter expert panel composed of behavioral health experts from throughout the state. This panel met three times through the one-year timeline of this project and served to inform the development of meaningful profiles and to aid in the identification of key leadership and organizations in the targeted counties and communities.

HQSI's key objectives were to: (1) introduce the profiles to the targeted counties and communities, guide profile utilization, and provide complementary tools and resources, (2) create public awareness of the project focusing on the Medicare depression screening benefit, and 3) identify and work with champions interested in taking a leadership role (with initial training and support from HQSI) in bringing their community together to enhance coordination of behavioral health services.

All interventions tried

Objective 1: Introduction of profiles to the targeted counties and communities, guide profile utilization, and provide complementary tools and resources

With feedback from the subject matter experts, HQSI developed a comprehensive list of leaders at the county and community level to target for introduction of the profiles. Leaders were identified from behavioral health providers and associations, disaster planning agencies, government and elected officials, and community-based organizations. HQSI reached out to these leaders by telephone and e-mail for the purpose of inviting them to participate in a project launch webinar, held in January 2014. The first part of the webinar provided a detailed overview of the project as well as an in-depth review on the content of the county and community profiles. The second part of the webinar focused on how the profiles could be used to enhance coordination of behavioral health services at the local level, with a special emphasis placed on the Medicare-covered depression screening benefit. HQSI reviewed its plan for community capacity building and examples for a community action plan.

During the webinar, HQSI announced its plans to conduct follow up calls with local leaders in the targeted areas to provide further education regarding the profiles and their use and to identify local champions who, with initial support and facilitation from HQSI, would be interested in engaging their local community in a collaborative effort to enhance coordination of behavioral health services. Following the webinar, HQSI continued to reach out to these leaders utilizing a

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[4] A multidisciplinary team was established to address these two components. This team was divided into two workgroups: an analytic workgroup led by a researcher and composed of a physician, an epidemiologist, a statistician, and an analyst; and a community capacity building workgroup led by a nurse quality improvement specialist and composed of quality improvement staff, visual communications specialists, a communications specialist, and administrative support associates.

variety of methods including telephone calls, e-mails, and on-site visits as well as participation in local behavioral health/disaster planning meetings. Outreach letters and copies of pertinent profiles were also sent to mayors in targeted communities and followed up with telephone calls.

The ongoing contacts HQSI made with local leaders in the targeted areas led to team members being invited to already-established meetings to share the profiles and in other cases, led to meetings being established for the sole purpose of introducing and engaging local audiences in the profiles.

Overall, HQSI found that the profiles were a welcome tool for better understanding of the utilization of behavioral health services and prevalence of behavioral health conditions among Medicare FFS beneficiaries. Additionally, HQSI found that there was limited awareness among health care providers of the Medicare depression screening benefit. Consequently, the education and tools provided by HQSI to providers, community and professional organizations such as Mental Health Advisory Boards[5], behavioral health providers, and primary care physicians regarding the depression screening benefit were well received and were used to heighten awareness and support increased utilization.

Although individuals contacted indicated that the profiles would have greater value if they reflected all payer data as opposed to only Medicare FFS data, they did indicate that the profiles would be used in the following ways:
- Identification and targeting of beneficiaries in need of behavioral health services
- Developing proposals in response to behavioral health funding opportunities
- Potential use in phasing in new behavioral health services

HQSI shared profiles and related resources/materials with contacts in every county and community, and made presentations in eight of the 10 target counties. An overview and examples of HQSI's interaction in the targeted communities can be found in Appendix J. In addition, HQSI gave a presentation to the NJ Commissioner of Health and her staff. Although response and engagement varied, some positive examples include:
- The New Jersey Commissioner of Health directed the following offices and divisions within her department to incorporate the profiles into current and future planning initiatives: Office of Communications; Office of Policy and Strategic Planning; Public Health Services; Division of Family Services, including Special Child Health and Early Intervention Services; and Division of Public Health Infrastructure, Laboratories, and Emergency Preparedness. Early actions being taken by the Commissioner include posting HQSI's beneficiary education fact sheets on depression screening on the Department of Health web site and including an article about the project in the state's August 2014 e-newsletter. Short term, the Commissioner's actions are contributing to heightened public awareness of the depression screening benefit and the profiles. In the long term, the Commissioner's actions may lead to better coordination of behavioral health care through

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[5] The Mental Health Board serves as an advisory board to the Board of Chosen Freeholders, and monitors the provision of a continuum of mental health services on behalf of residents. The mental health services are under contract with the state Division of Mental Health Services. Members are appointed. The diversity of the county population and perspectives of families and consumers are represented. It also acts as the first level of outside appeal for client grievances regarding contracted agencies

inclusion of the profile data in future work undertaken by the New Jersey Department of Health
- The Atlantic County Mental Health Board will be using the profiles to update its 2015 Mental Health Report
- The Ocean County Health Board is assessing how the profiles can enhance current and future planning and programming. The county health board typically focuses on the indigent, uninsured, and underinsured, and not the Medicare population. Given that the profiles highlight specific areas of need among this population, they stated their intent is to incorporate a focus on Medicare FFS beneficiaries in their future planning. The county health board invited HQSI to attend additional meetings to discuss the updated profiles
- In Hudson County, the mayor of its largest city community convened a meeting of government, private, and nonprofit organizations offering behavioral health services and HQSI; the community will establish a multi-year plan for city redevelopment that will include behavioral health services

Objective 2: Create public awareness of the project, focusing on Medicare depression screening benefit

To create public awareness of the project and the Medicare depression screening benefit, HQSI created a Superstorm Sandy page on its web site dedicated to this project. The web site featured the profiles as well as a recording of the project launch webinar; specific tools and resources, including a community action plan template; provider and beneficiary fact sheets regarding the depression screening benefit; SAMHSA toolkits; and a comment box to give interested individuals a place to provide feedback or ask questions.

HQSI also raised awareness during outreach and contacts described previously. During community and other meetings, materials (e.g. copies of specific county or community profiles, flyers) were distributed; these materials were also distributed to local libraries in affected areas. Stakeholders and community participants were encouraged to access the profiles on the HQSI Superstorm Sandy web page and a link was added to capture feedback.

HQSI promoted the project at statewide events and disaster recovery meetings such as, "Addressing Trauma and Resilience Post Hurricane Sandy," sponsored by the Hurricane Sandy New Jersey Relief Fund and hosted by the Robert Wood Johnson Foundation as well as the annual New Jersey Behavioral Health Quality Improvement Fair.

Press releases were distributed to local media outlets upon release of the initial county and community profiles and subsequent updates. These press contacts led to interviews and articles in local newspapers (electronic and print) as well as a television station (NJTV) in New Jersey and was picked up in certain markets outside New Jersey. Appendix K provides a summary of media coverage attained.

All interventions that would have been tried if not for some resource or other problem

Objective 3: Identify and work with champions interested in taking a leadership role (with initial training and support from HQSI) in bringing their local community together to enhance coordination of behavioral health services

HQSI's planned approach was built upon the following ReThink Health and Organizing for Health methods and tools:
- Bringing individuals and organizations together
- Realizing common goals
- Enhancing resources and abilities
- Achieving measurable and sustainable results
- Building opportunity for learning and development as a group
- Allowing for exchange and planning

HQSI's community capacity workgroup learned and intended to employ the following tactics in application of these methods and tools:
- One-on-one outreach and interviews
- Public narrative – a leadership technique to engage participants in developing a shared purpose, goals and vision. This approach includes three elements:
  - A story of self – why you were called to what you have been called to
  - A story of us – what your constituency, community, organization has been called to
  - A story of now – the challenge the community faces, the choices it must make, and the hope to which "we" can aspire
  - Mapping of actors to better understand that way community organizations interact

Weekly to bi-weekly meetings of HQSI's Superstorm Sandy team were held throughout the project. Ongoing education, review, and practice were incorporated into each meeting. Additionally, each meeting included sharing of outreach experiences, challenges, successes, and lessons learned. Materials being used were reviewed and revised based on feedback from meeting participants. Challenges were discussed and often solutions were developed and implemented. In some cases, ideas for new materials were shared and submitted for development. What worked, what didn't work, and lessons learned were all shared and discussed, as detailed in the Discussion section of this report.

While providers and community contacts in the communities viewed the profiles as an important tool, there was no interest among those contacted in taking on the role of a local champion.

What worked and did not work

Throughout the project, HQSI attended and facilitated, when appropriate, ongoing community-based discussions on ways to effectively share information, ideas, best practices, barriers, and lessons learned; engage partners; coordinate efforts; and facilitate spread. This helped promote the necessary coordination of efforts and focus the attention of the health care community on the needs of the shared patient population.

HQSI used a data driven approach by educating stakeholders on the utility of the data profiles to spark interest and action. Two methods of outreach were discussed and one was ultimately used. The first one focused on identifying potential leaders/champions in the target areas and sending invitations to an initial meeting planned and hosted by HQSI (similar to roll out of care integration coalitions under CMS' 10th Statement of Work). The purpose was to introduce the project with subsequent outreach, planning of meetings, and meeting the potential leaders/ champions with follow-up actions defined and incorporated.

This second method utilized the pre-existing collaborative team or group in a community where HQSI staff either attended the already-planned meetings or attended a meeting of the group that allowed presentation and discussion. After initiating contact it was discovered that a number of community groups/consortiums already existed in the state. Rather than duplicate efforts, the decision was made to join and attend meetings planned by these groups as a way to introduce and gain support for the project.

The county and community data profiles are useful tools for local communities and government organizations to use in understanding and addressing gaps in behavioral health utilization. Multiple organizations have used, and some indicated an intent to use, the profiles to plan future initiatives and target grant proposals. The subject matter experts recruited for this project were helpful in informing the content of the data profiles and in identifying community leaders at the local level. Due to competing priorities, they were less engaged in direct outreach to the counties and communities.

A strong champion, particularly a government elected official who had countywide influence, positively impacted in our reception in the counties and influenced the use of the profiles and the project. For example, in Ocean County a freeholder/county commissioner was introduced to the profile; he gave it to his staff who shared it with the appropriate county organization, resulting in HQSI presenting to the Mental Health Board and data from the profile being included in the county recovery plan. Coastal counties (Ocean, Monmouth, Atlantic) that experienced vast devastation appeared more interested in the project than counties not on the coast (i.e. Bergen and Middlesex). However, the communities in these counties were more focused on housing for displaced residents and rebuilding the community infrastructure than learning about the project.

HQSI applied its experience in facilitating discussions with providers and partners who have not traditionally worked together. HQSI attempted to have these groups identify a common vision and goal to develop a shared commitment, structure, strategy, and action. This was not as successful as anticipated due to the fact that the focus of many communities is still on housing issues for displaced residents. Additionally, there was limited availability and commitment in key leadership positions at the community level. Key leaders were overwhelmed with multiple roles within their organizations (more common with smaller community-based organizations).

Additionally, community building requires more time than this project allowed: community leaders must first trust one another before true collaboration can be built in an environmental culture of competing, and perhaps different, priorities. While there was a great deal of interest, concrete action was slow to develop in most areas within this short period of time. Twenty

months after the storm rebuilding is still underway in many areas of New Jersey and that is the current priority. As stated by a consultant working in one of the disaster counties, "if the housing needs of the individual are not met, nothing else happens."

Some of HQSI's targeted areas were receiving grant funding from multiple sources. These were the small communities where leaders wore several hats. Multiple projects consumed the time and interest of many of these organizations and individuals that HQSI was attempting to contact, which may have contributed to lack of engagement.

The inability to engage local champions is attributed primarily to two related factors. New Jersey is a state where self-government in local matters is near absolute, resulting in a decentralized, mixed system for providing public health and health care services. Although there are only 21 counties, there are 115 independent local public health departments and 565 separate municipalities. In this political, fragmented, and highly competitive arena, bringing local healthcare providers and organizations together is difficult and takes time.

Given this challenging environment, this one-year project did not afford sufficient time to build the necessary relationships upon which to initiate this component of the project. That being said, the dissemination of and education about the profiles have started an important dialogue among critical New Jersey healthcare stakeholders that has been building during the final four months of the project, which concluded in July 2014.

Similarly, the Robert Wood Johnson Foundation invited HQSI to participate in an "Addressing Trauma and Resilience Post Hurricane Sandy" meeting also held in June 2014. It has taken 11 months since project initiation to achieve the necessary political buy-in that would facilitate active engagement at the local level. This project has been effective in laying the groundwork for subsequent work, which if funded, would likely be successful in recruitment of local champions and associated community capacity building. The county mental health boards were more interested and receptive to the information than the county Mental Health Associations.[6]

Possible long term solutions to the issue

The one-year time frame allocated was not sufficient. The subject matter experts and communities indicated that the data profiles would be more meaningful if they continued for a three-to-five-year period. Additionally, the longer time frame would allow more time and resources for much-needed community capacity building efforts. Available data relating to mental health issues as a result of Superstorm Sandy is relatively recent. The limited project time frame, coupled with the fact that this project only analyzed Medicare beneficiaries in 10 counties, and the one year of available Medicare post-storm data, have in turn limited the utility

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[6] The Mental Health Association leads advocacy and government affairs focusing on mental health preservation and promotion, with an emphasis on integrating mental health into health care reform and lessening the impact of stigma. The association takes an active role in supporting the investment in community mental health resources in New Jersey, reducing dependence on large, outdated psychiatric institutions, establishing services to address complex mental health issues, and assisting under-served populations.

of the profiles and the ability to evaluate the long-term impact of the storm. Extending the project to at least another three years would provide a solution to this issue.

<u>What the QIO would do differently if they had to do the project over again.</u>

Analysis of the initial profile data and the design of the profiles took longer than anticipated (six months as opposed to four months). Applying Plan-Do-Study-Act cycles, HQSI determined that it was more time efficient to finalize one profile before developing and editing others. The method was applied and resulted in a streamlined process that significantly decreased profile development time for the second profile update (10 weeks) and third profile update (six weeks).

Based on HQSI's prior experience and feedback from the subject matter experts consulted for this project, HQSI contacted communities once the profiles were available to serve as the impetus for engagement. In retrospect, it may have been more effective to initiate contact with communities at the beginning of the project to allow more time for community capacity building efforts. That being said, certain organizations such as the Mental Health Association in New Jersey would not engage in project-related activities until they had access to the profiles.

Furthermore, HQSI needed to better articulate the expectations of the subject matter experts in regards to the community capacity building portion of this project. Action items, such as reaching out to at least three colleagues to inform them of the profiles and HQSI's subsequent outreach, may have led to more interest and involvement at the county and community level.

Lastly, more post-storm analysis is warranted to assess the impact of the storm and should include additional populations suggested by behavioral health professionals such as Medicaid, Medicare and Medicaid dual eligible, uninsured, and homeless (particularly veterans) and include topics such as psychiatrist capacity/competency/training and Trauma Informed Care (data on individuals who have experienced trauma caused by a single event or prolonged exposure to abuse) which could assess the impact on waterfront communities that were devastated by the storm that still have residents displaced 18 months after Superstorm Sandy.

The one-year time frame allocated was not sufficient. The subject matter experts and communities indicated that the data profiles would be more meaningful if they continued for a three-to-five year period. Additionally, the longer time frame would allow more time and resources for much-needed community capacity building efforts.

<u>Evidence of the successes and failures of the project related to the questions noted above that the project attempted to answer; this shall include personal testimony as well as data</u>

The data profiles presented to these key players provided a baseline estimate of the prevalence of behavioral health conditions, prevalence of risk factors for developing depression, and utilization of various health services among Medicare FFS beneficiaries in the 10 FEMA-declared disaster counties. The annual rates before and after Superstorm Sandy were compared to assess the impact of the storm. In the year after the storm, there was a relative increase in the diagnosis rate of depression or proxy disorders, anxiety disorders, alcohol or substance abuse, substance abuse alone, and PTSD in the 10 counties. After the storm, 197.7 per 1,000 of Medicare FFS beneficiaries had depression or proxy disorders, compared with 193 per 1,000 before the storm.

The 10 counties together had an increase in anxiety disorders after Superstorm Sandy, from 105.7 per 1,000 to 113.9 per 1,000. Females, Hispanics, and those below the age of 65 had higher rates of depression or proxy disorders. The most utilized behavioral health services were psychiatric diagnostic procedures and individual psychotherapy. As a new benefit, depression screening rates increased significantly in the 10 counties from 4.81 per 1,000 beneficiaries in 2012 to 12.03 per 1,000 in 2013.

HQSI found an overall decrease in health service utilization after the storm. This observation is supported by previous literature that suggests most survivors of disasters are reluctant to utilize mental health services or that they face significant barriers to accessing services (Rodriguez and Kohn, 2008). Research done by Rodriguez and Kohn suggests that service utilization following a disaster is influenced by predisposing characteristics, enabling resources, and perceived need. Predisposing characteristics include personal or socioeconomic factors; enabling resources include one's access and availability to resources; and perceived needs include the individual's motivation to seek help. Furthermore, awareness of these factors that influence mental health utilization can be useful in the preparation for future disasters.

The true burden of mental illness is widely underestimated or unknown, mainly due to the lack of awareness and the scarcity of data collection or reporting tools regarding behavioral health conditions. This is a preliminary study funded by CMS to analyze the regional mental health burden using Medicare claims data. Using administrative data such as the Medicare FFS Part A and Part B claims gives us useful and reliable results in health services research. Medicare claims files contain information collected by Medicare to pay for health care services provided to a Medicare beneficiary. They contain information such as procedure and diagnosis information, dates of service, revenue center detail, payment and charge amounts, beneficiary demographic information, and limited professional provider and facility data. There is clinical validity as Medicare data contain information about covered services used by enrollees in the program. Medicare data is one of the richest sources of utilization information in the country as approximately 98% of seniors are covered under Medicare (Virnig and Madeira, 2012).

Claims data has limitations, such as identification of beneficiaries with behavioral health conditions based on diagnoses reported in Medicare FFS claims, which could result in underestimation. There is no accurate way of identifying when certain health conditions began and ended and a claims lag of at least six months may prevent accurate estimation of the post-Sandy effect. Furthermore, covered services for which claims are not submitted are not included in the data. Additionally, this analysis is specifically focused on Medicare FFS beneficiaries and the results cannot be generalized to the entire population. The behavioral health providers HQSI interacted with in various meetings expressed concerns about the data being limited to Medicare FFS claims and the limited number of communities selected for the project. Also, after a natural disaster like Superstorm Sandy the onset of mental illness among residents may not occur for months after the event.

Description of how the program can be replicated in other communities and states with links and citations of appropriate training materials.

Superstorm Sandy was unprecedented for New Jersey and the existing best practices may be limited in informing this project. HQSI's participation in local and statewide healthcare initiatives offered the opportunity to affect a larger population than the 10 targeted counties. Any work carried out by HQSI will make a large, positive impact on informing future patient outcomes after a natural disaster. By highlighting disruption in mental health services during and after the storm, providers will know what demands need better coordinated efforts and can deploy their resources accordingly in order to achieve the best possible patient outcomes in their community.

The data profiles produced through this project can be used by health care providers and government agencies to inform future initiatives. They will help communities identify the greatest opportunities for improvement with regard to mental health and address those opportunities with a proven, community-based approach to natural disaster recovery.

This project confirms that Medicare claims database can also be used to analyze behavioral health conditions and utilization. This project can be replicated in other states and communities to estimate the prevalence of behavioral health conditions and enhance coordination. The full data profiles, documentation, technical notes, codes, algorithms, data sources, and references can be found at: www.HQSI.org.

Additional materials developed for this project included the following:

1. Action Plan Templates and Samples: designed to help community create an action for enhancing coordination of behavioral health services
2. Frequently Asked Questions: can be used to gain a better understanding on the data profiles, the design of the study and the utility of the data profiles.
3. At-a-Glance: designed as a quick reference for the profiles, these one-pagers highlight the topics that can assist in enhancing the continuum of behavioral health care.
4. Resources for emergency preparedness guidance for the public and resources for individuals seeking behavioral health assistance.

A project summary suitable for the lay reader, that is someone with a ninth grade education who has no knowledge of technical terms

Natural disasters like Superstorm Sandy not only cause physical damage, they also cause emotional damage. This means that after a storm there may be increases in illnesses such as depression, anxiety, or substance abuse. However, there isn't much data available on this topic and that makes it hard to know the true emotional impact of a storm.

Therefore, HQSI decided to study how many Medicare patients in the 10 hardest hit counties were diagnosed with and treated for certain mental health conditions.

Overall, eight conditions were studied and the number of patients with these conditions, both before and after Sandy, were compared. All of this data appears in the health profiles created for 10 NJ counties and 10 selected communities, which were shared with local healthcare leaders to communicate diagnoses and treatment patterns in their community.

This project was designed to help local healthcare leaders bring their community together to better treat mental health illnesses. HQSI did this by reaching out to several leaders in each county and community through email, telephone, and face-to-face meetings. The purpose of this outreach was to share the profiles and increase the use of the new depression screening.

The project also focused on telling healthcare leaders about a new Medicare health benefit – a depression screening. The screening is 15 minutes long and involves a doctor asking a series of questions. By the end of the screening, the doctor will know if the patient should be treated for depression.

This project has been successful in that: (1) the data profiles have been used by local leaders in behavioral health planning and (2) there is heightened awareness of the need for enhanced coordination of behavioral health services at the local level. Additional time is needed for: (1) the data to mature to allow for examination of long term effects and trends over time, and (2) the communities to trust build trust among themselves and then work collaboratively to track the data and use it to enhance coordination of behavioral health services.

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Appendices

Appendix A:

The table below shows the measures and results for the 10 selected communities in the 21 months before Sandy. Depression screening was only available starting January 1, 2012. CY 2012 data was used for community selection.

		Rates per 1000 Medicare FFS Beneficiaries in the selected communities		
Community	County	Depression or Proxy Disorders (01/01/2011 – 09/31/2012)	Top five Risk Factor for Depression (01/01/2011 – 09/31/2012)	Depression Screening (CY 2012)
Atlantic City & Ventnor City	Atlantic	243.32	201.05	2.85
Pleasantville & Absecon/Smithville	Atlantic	256.91	181.92	0.48
Hackensack	Bergen	267.49	159.24	10.24
Jersey City	Hudson	224.70	163.50	2.18
New Brunswick	Middlesex	278.44	167.21	11.86
Perth Amboy & Keasbey	Middlesex	266.18	158.62	0.00
South Amboy /Laurence Harbor	Middlesex	206.13	168.16	1.38
Eatontown & Shrewsbury	Monmouth	273.87	167.66	1.29
Long Branch& Monmouth Beach	Monmouth	296.93	176.30	2.61
Toms River	Ocean	256.88	198.63	8.78
10 Community		251.52	174.23	4.89

Appendix B:

Literature Review References for Risk Factors for Depression or Proxy Disorders

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Appendix C

Table below shows the odds ratios (ORs) of all the statistically significant variables included in the final adjusted logistic regression model to identify the top five risk factors of depression or proxy disorders.

Adjusted Odds Ratios (OR) and 95% Confidence Intervals for Risk Factors of Depression or Proxy Disorders		
Risk Factors	Point Estimate	95% Wald Confidence Limits
Exposure time*	4.63	4.55	4.72
Alzheimer's Disease and Related Disorders or Senile Dementia[+]	3.51	3.45	3.58
Amputations[+]	1.85	1.66	2.07
Sleep Disturbance[+]	1.82	1.78	1.87
Hip/Pelvic Fracture[+]	1.72	1.66	1.79
Alcohol Sub Tobacco Abuse[+]	1.67	1.65	1.70
Race: White	1.53	1.50	1.55
COPD	1.28	1.26	1.30
Heart Failure	1.24	1.22	1.26
Parkinsonism	1.21	1.08	1.36
Stroke / Transient Ischemic Attack	1.15	1.12	1.17
Chronic Kidney Disease	1.11	1.09	1.13
Acute Myocardial Infarction	1.09	1.05	1.13
Age	1.00	1.00	1.00
Cancer	0.95	0.94	0.97
Diabetes	0.90	0.89	0.91
Rheumatoid Arthritis/Osteoarthritis	0.86	0.85	0.87
Acquired Hypothyroidism	0.78	0.77	0.79
Macular Degeneration	0.65	0.63	0.66
Male	0.52	0.52	0.53

*Exposure time is the time adjusted for FFS eligible days
[+] Identified as the top five risk factors

Appendix D

Tables below show the total number of eligible beneficiaries and demographic (female, race, age) and median household income for 10 counties, before and after Superstorm Sandy.
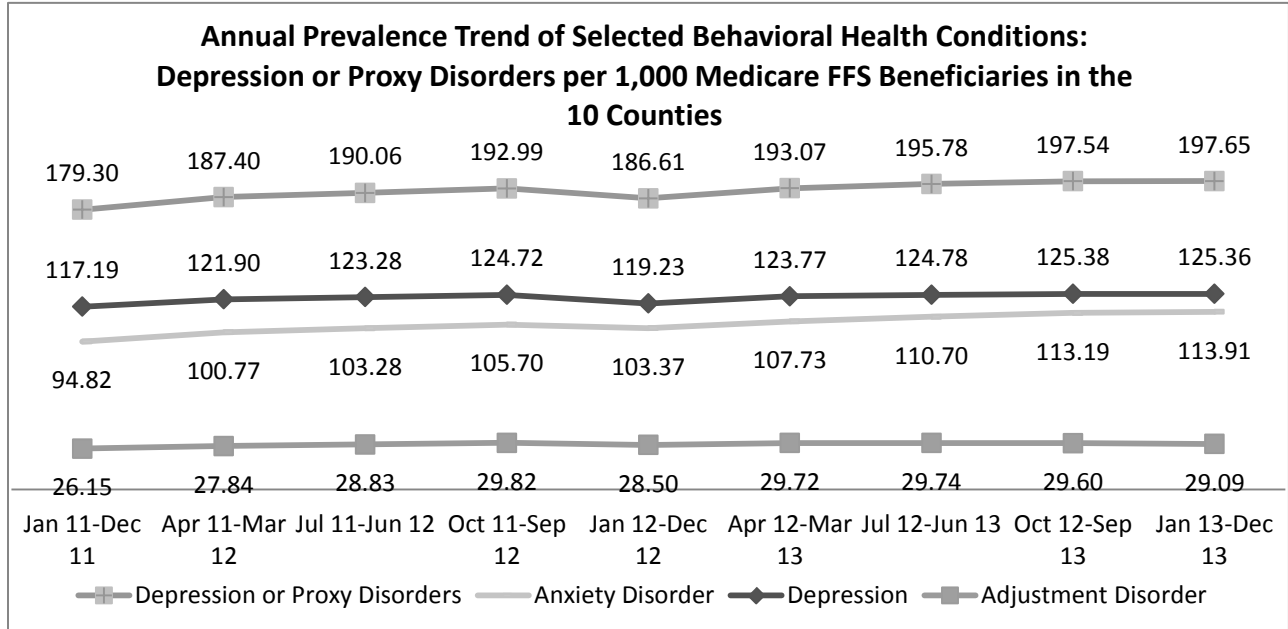
Demographic Distribution of the 10 Counties: Gender, Age and Income							
County	Total Eligible Beneficiaries (n)		Percentage of Females (%)		Average Age		Median Household Income ($)*
	Before	After	Before	After	Before	After	CY 2012
Atlantic	42,840	43,409	55.11	54.99	70.92	70.95	39,246
Bergen	129,460	130,319	57.00	56.73	73.97	73.92	52,540
Cape May	21,528	21,855	53.96	53.88	72.05	72.10	39,151
Essex	84,636	83,383	57.32	57.08	71.39	71.47	34,891
Hudson	59,122	57,498	57.49	57.18	71.49	71.41	29,692
Middlesex	96,195	96,912	56.31	56.06	72.42	72.39	44,381
Monmouth	91,604	93,285	56.24	56.01	72.44	72.40	53,705
Ocean	114,782	114,871	57.16	56.96	73.34	73.24	37,747
Somerset	39,039	40,193	56.63	56.23	73.00	72.99	60,189
Union	65,315	65,223	57.23	57.04	72.68	72.56	48,816
10 County	744,521	746,948	56.72	56.48	72.60	72.56	$ 44,035

* Source: U.S. Census Bureau, American Community Survey (ACS), 2012 http://www.census.gov/.

Demographic Distribution of the 10 Counties: Race									
	Whites		Blacks		Hispanics		Asians		Others	
County	Before	After	Before	After	Before	After	Before	After	Before	After
Atlantic	78.73	78.81	14.01	13.43	2.52	2.55	3.00	3.09	1.73	2.12
Bergen	83.77	83.00	4.82	4.79	2.48	2.40	4.65	4.78	4.29	5.03
Cape May	94.56	94.53	3.67	3.46	0.40	0.36	0.40	0.35	0.98	1.31
Essex	54.95	55.19	35.36	34.58	4.21	4.01	1.87	1.95	3.59	4.27
Hudson	61.88	61.02	12.02	12.04	14.98	14.75	5.38	5.59	5.74	6.61
Middlesex	77.80	77.00	7.55	7.57	3.53	3.38	6.38	6.51	4.74	5.54
Monmouth	87.88	87.54	7.00	6.70	0.81	0.79	1.57	1.57	2.73	3.40
Ocean	95.60	95.30	1.96	1.92	0.57	0.56	0.57	0.58	1.30	1.65
Somerset	82.96	81.93	6.68	6.72	1.38	1.36	4.46	4.60	4.51	5.40
Union	70.08	69.27	19.40	19.54	5.46	5.43	1.88	1.92	3.18	3.85
10 County	78.96	78.60	11.00	10.76	3.48	3.37	3.14	3.22	3.42	4.06

Appendix E

Figure below shows the annual prevalence for depression or proxy disorders, anxiety disorder, depression alone and adjustment disorder in the ten counties.

Annual Prevalence Trend of Selected Behavioral Health Conditions: Depression or Proxy Disorders per 1,000 Medicare FFS Beneficiaries in the 10 Counties

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Depression or Proxy Disorders	179.30	187.40	190.06	192.99	186.61	193.07	195.78	197.54	197.65
Depression	117.19	121.90	123.28	124.72	119.23	123.77	124.78	125.38	125.36
Anxiety Disorder	94.82	100.77	103.28	105.70	103.37	107.73	110.70	113.19	113.91
Adjustment Disorder	26.15	27.84	28.83	29.82	28.50	29.72	29.74	29.60	29.09

Legend: Depression or Proxy Disorders, Anxiety Disorder, Depression, Adjustment Disorder
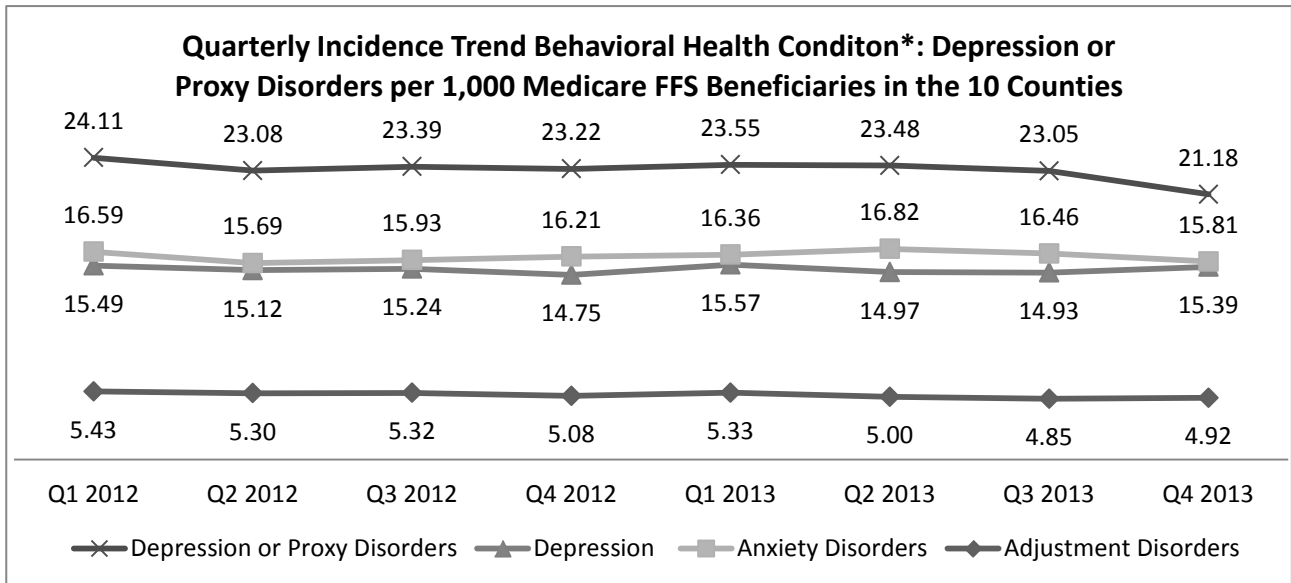
Appendix F

Figure below shows the quarterly incidence for depression or proxy disorders, anxiety disorder, depression alone and adjustment disorder in the ten counties. Quarterly new incidence of conditions was those that were not non-existent (not reported) in the prior 12 months of the reported time frame.

Quarterly Incidence Trend Behavioral Health Conditon*: Depression or Proxy Disorders per 1,000 Medicare FFS Beneficiaries in the 10 Counties

	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013
Depression or Proxy Disorders	24.11	23.08	23.39	23.22	23.55	23.48	23.05	21.18
Anxiety Disorders	16.59	15.69	15.93	16.21	16.36	16.82	16.46	15.81
Depression	15.49	15.12	15.24	14.75	15.57	14.97	14.93	15.39
Adjustment Disorders	5.43	5.30	5.32	5.08	5.33	5.00	4.85	4.92

Legend: Depression or Proxy Disorders, Depression, Anxiety Disorders, Adjustment Disorders
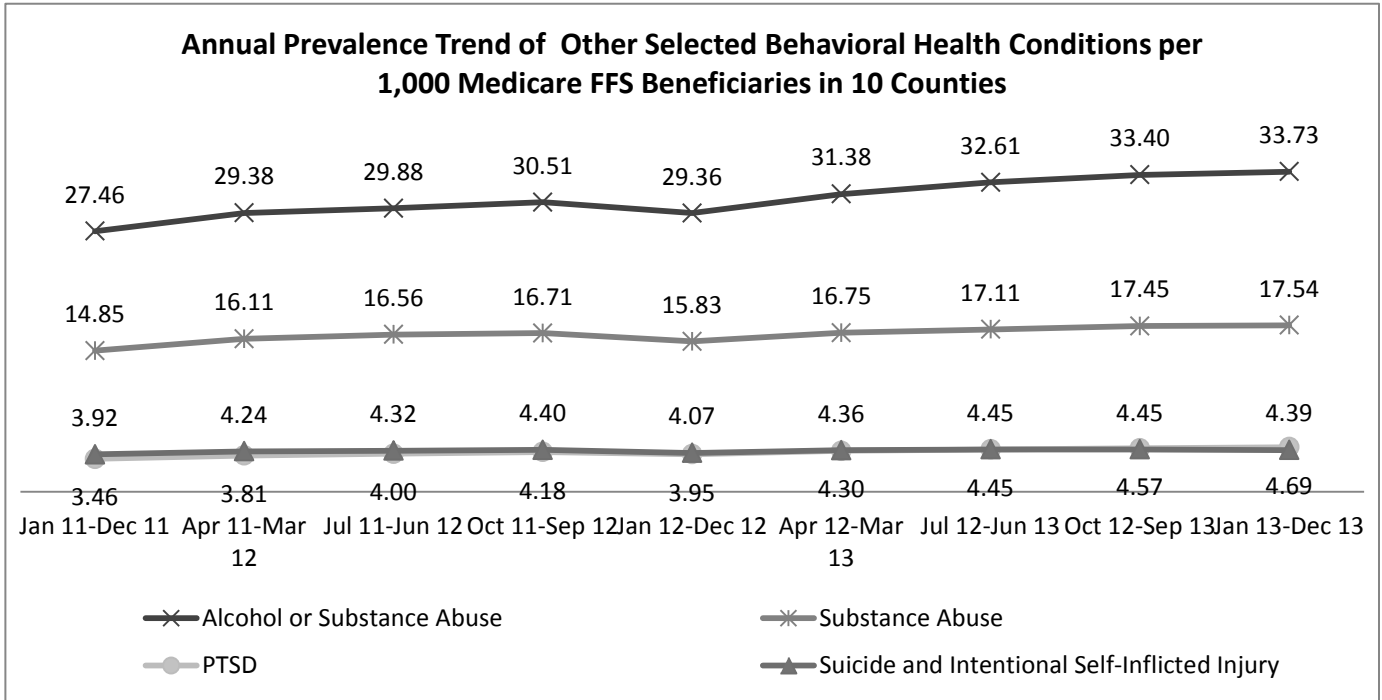
Appendix G

Top Five Risk Factors for Depression or Proxy Disorders

In the 10 counties, before the storm, 13.36% of Medicare FFS beneficiaries had at least one of the top five risk factors and were at risk of depression or proxy disorders. Substance or alcohol abuse or tobacco use was the most prevalent (7.8%) risk factor. After the storm, the prevalence rate of any of the top five risk factors decreased in the overall 10 counties (0.15%).

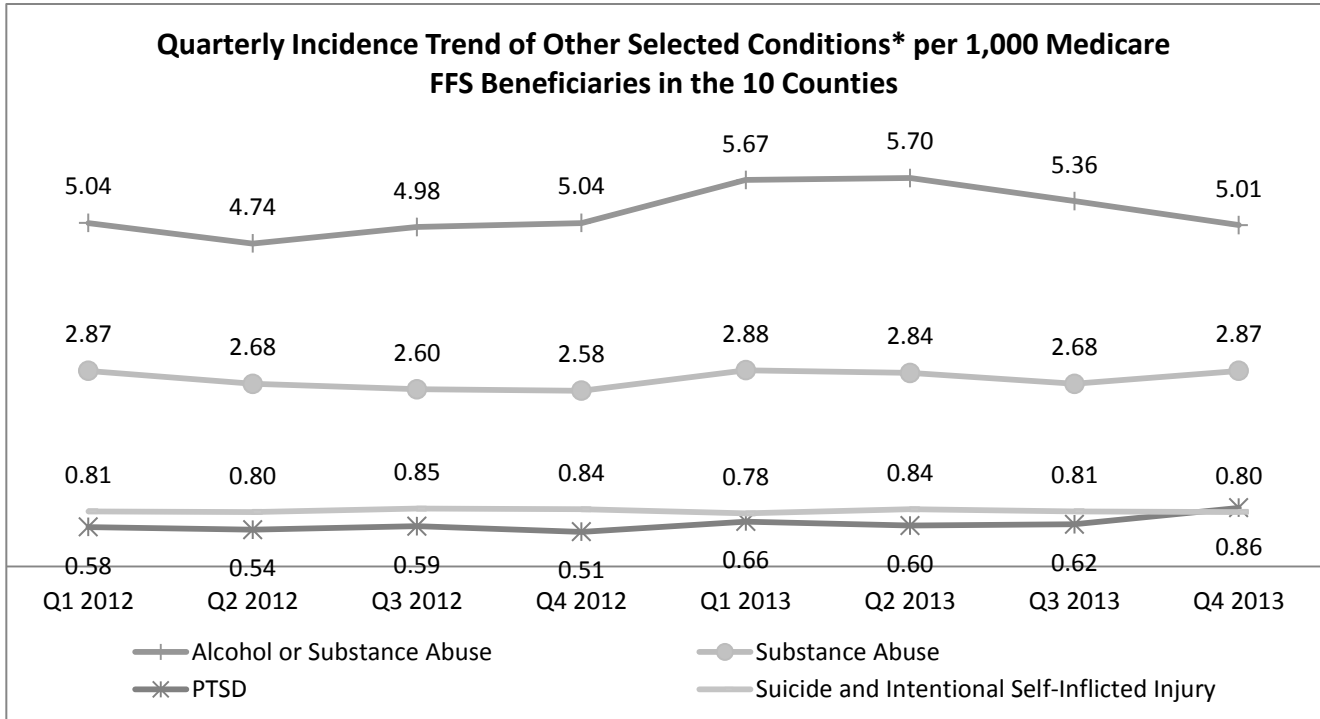| Prevalence of Top Five Risk Factors of Depression or Proxy Disorders Per 1,000 Medicare FFS Beneficiaries				
	Before	After	Absolute Change	% Change
Top five risk factors for Depression or Proxy Disorders	136.36	136.15	-0.21	-0.15%
• Substance or Alcohol Abuse or Tobacco Use	78.33	81.78	3.45	4.40%
• Alzheimer's Disease and related disorders or Senile Dementia	39.11	34.91	-4.20	-10.74%
• Sleep Disturbance	24.24	24.78	0.54	2.23%
• Hip/Pelvic fractures	7.95	7.66	-0.29	-3.65%
• Amputation	1.11	0.99	-0.12	-10.81%

Appendix H

Figure below shows the annual prevalence for alcohol or substance abuse, substance abuse alone, PTSD and suicide and intentional self-inflicted injury in the ten counties

Annual Prevalence Trend of Other Selected Behavioral Health Conditions per 1,000 Medicare FFS Beneficiaries in 10 Counties

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Alcohol or Substance Abuse	27.46	29.38	29.88	30.51	29.36	31.38	32.61	33.40	33.73
Substance Abuse	14.85	16.11	16.56	16.71	15.83	16.75	17.11	17.45	17.54
PTSD	3.92	4.24	4.32	4.40	4.07	4.36	4.45	4.45	4.39
Suicide and Intentional Self-Inflicted Injury	3.46	3.81	4.00	4.18	3.95	4.30	4.45	4.57	4.69

Appendix I

Figure below shows the quarterly incidence for alcohol or substance abuse, substance abuse alone, PTSD and suicide and intentional self-inflicted injury in the ten counties. Quarterly new incidence of conditions was those that were not non-existent (not reported) in the prior 12 months of the reported time frame.

Quarterly Incidence Trend of Other Selected Conditions* per 1,000 Medicare FFS Beneficiaries in the 10 Counties

	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013
Alcohol or Substance Abuse	5.04	4.74	4.98	5.04	5.67	5.70	5.36	5.01
Substance Abuse	2.87	2.68	2.60	2.58	2.88	2.84	2.68	2.87
Suicide and Intentional Self-Inflicted Injury	0.81	0.80	0.85	0.84	0.78	0.84	0.81	0.80
PTSD	0.58	0.54	0.59	0.51	0.66	0.60	0.62	0.86

Legend: Alcohol or Substance Abuse; Substance Abuse; PTSD; Suicide and Intentional Self-Inflicted Injury

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

Overview and Examples of HQSI's Project Interactions			
County	**Targeted Community**	**# HQSI Contacts**	**Examples**
Atlantic	Atlantic City/Ventnor Pleasantville/ Absecon/ Smithville	90	HQSI and the area's largest health system jointly conducted a webinar to introduce the project and profiles to their staff. Follow up contacts were made to the behavioral health staff to continue the conversation. HQSI gave a presentation to the Atlantic County Mental Health Advisory Board. Attendees engaged in productive dialogue regarding profiles and invited HQSI to subsequent meetings for presentation of updated profiles. The Mental Health Board will be using the profiles to update the county 2015 Mental Health Report HQSI gave a presentation to the local AARP chapter about the depression screening benefit and was invited back to present again at a future date
Bergen	Hackensack	44	Contacts made and/or meetings held with providers (acute and psychiatric, nursing homes, home health agencies), mental health board, human services department, elected officials, community organizations such as Jewish Health Services, Recovery Informational Center, and Voluntary Organizations Active in Disasters (VOAD). Contacts created project awareness and heightened knowledge about the depression screening benefit.
Cape May	Not applicable	13	HQSI, in collaboration with a local health educator, participated in a local area health fair to promote the project and the depression screening benefit. During this event, HQSI participated in a local focus group and learned that many area residents impacted by Superstorm Sandy were relocated to this area and have not yet been able to return to their homes. A representative of one of the county HHAs attended the special meeting at HHA organization's headquarters where HQSI presented the project.
Essex	Not	17	HQSI gave a presentation to a multidisciplinary audience at a

County	Targeted Community	# HQSI Contacts	Examples
	applicable		skilled nursing facility.
Hudson	Jersey City	19	The mayor of a targeted community directed the local director of health and human services to contact HQSI to discuss the profile and discuss next steps. This led to a community meeting attended by the mayor and private and nonprofit organizations offering behavioral health services. The meeting featured speakers from CMS Region II, the president and chief executive officer of one community hospital, physicians, and HQSI. This meeting resulted in the community establishing a multi-year plan for redevelopment of the city that will include behavioral health services. HQSI also presented at a county mental health board meeting.
Middlesex	Perth Amboy/ Keasbey South Amboy/ Laurence Harbor New Brunswick	81	On sites visits were conducted to share information about the project and the profiles. The county mental health administrator and representatives of an HHA and behavioral health center were present at one of the meetings. Depression screening fact sheets for beneficiaries were left for educational purposes at local libraries and senior centers.
Monmouth	Long Branch/ Monmouth Beach Eatontown/ Shrewsbury	84	The county's human services advisory health council invited HQSI to present at a pre-scheduled meeting. The profile was well received and identified as being helpful in their planning. HQSI also attended a pre-scheduled meeting of the county's mental health committee. A county freeholder attended both meetings. A consultant working with this county to write their recovery grant finds the profile helpful in the preparation of that grant
Ocean	Toms River	73	Ocean County is home to the state's largest Medicare population. HQSI's point of entry into Ocean County for this project was made possible through the support of an elected official who facilitated an introduction between HQSI and the Ocean County

Overview and Examples of HQSI's Project Interactions			
County	**Targeted Community**	**# HQSI Contacts**	**Examples**
			Mental Health Board. As a result of this introduction, the Ocean County Mental Health Board invited HQSI to attend a county health board meeting to discuss the project and the profiles. As a result of this meeting, the county health board is assessing how the profiles can enhance current and future planning and programming. The county health board typically focuses its efforts on the indigent and uninsured and underinsured and not the Medicare population. Given that the profiles highlight specific areas of need among their Medicare population, they stated their intent is to incorporate a focus on this population in their future planning. The county health board has invited HQSI to attend additional meetings to discuss the updated profiles. A representative of one of the county HHAs attended the special meeting at HHA organization's headquarters where HQSI presented the project.
Somerset	None	20	The state HHA association hosted a special meeting in June for all county HHAs for HQSI to present a project and profiles. An individual representing a home health agency in this county attended. Although this county is not a coastal county, they frequently experience river flooding or power outages due to flooding. HHA's are always concerned about serving their home bound clients during emergency times. They expressed interest in the project.
Union	None	13	One community healthcare system manages the Statewide Clinical Outreach Program for the Elderly(S-COPE). A behavior health leader employed at the hospital is also a program director for S-COPE who attended HQSI's introductory webinar. The individual was very interested in the project and invited HQSI to present to their organization. HQSI presented project and profile information at three of their regional events.

Appendix K

Using the circulation numbers of the outlets that printed HQSI press releases throughout this project, it is estimated that these media efforts reached more than 1 million people in New Jersey as well as several hundreds of thousands outside the state.

Some of the circulation numbers used to calculate this outreach are as follows: The Star-Ledger, 316,000; nj.com, 316,000; The Philadelphia Inquirer, 306,831; and other publications with a combined circulation of 250,000.

A fill list of media publication garnered during this project appears below:

The Star-Ledger
Study will examine the mental health effects on senior citizens from Hurricane Sandy
August 29, 2013
http://www.nj.com/politics/index.ssf/2013/08/study_will_examine_the_mental_health_effects_on_senior_citizens_from_hurricane_sandy.html

NBC40
Studies show natural disaster victims can experience prolonged health risk
August 29, 2013
http://www.nbc40.net/story/23293078/studies-show-natural-disaster-victims-can-experience-prolonged-health-risk

Newsday
Studies show natural disaster victims can experience prolonged health risk
August 29, 2013
http://www.newsday.com/business/medicare-study-examines-mental-health-effect-of-superstorm-sandy-to-improve-future-disaster-response-1.5982719

WSFX-TV
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.wsfx.com/story/23294881/medicare-study-examines-mental-health-effect-of-superstorm-sandy-to-improve-future-disaster-response

Streetinsider.com
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.streetinsider.com/Press+Releases/Medicare+Study+Examines+Mental+Health+Effect+of+Superstorm+Sandy+to+Improve+Future+Disaster+Reponse/8646468.html

KTXD-TV
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.ktxdtv.com/story/23294881/medicare-study-examines-mental-health-effect-of-superstorm-sandy-to-improve-future-disaster-reponse

KFMB-AM (760 AM Talk Radio)
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.760kfmb.com/story/23294881/medicare-study-examines-mental-health-effect-of-superstorm-sandy-to-improve-future-disaster-reponse

Bio-Medicine
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.bio-medicine.org/story/medicine-news-1/Medicare-Study-Examines-Mental-Health-Effect-of-Superstorm-Sandy-to-Improve-Future-Disaster-Reponse-115093-1/

KALB-TV
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.kalb.com/story/23294881/medicare-study-examines-mental-health-effect-of-superstorm-sandy-to-improve-future-disaster-reponse

KEYC-TV
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.keyc.com/story/23294881/medicare-study-examines-mental-health-effect-of-superstorm-sandy-to-improve-future-disaster-reponse

KXVO-TV
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.cw15kxvo.com/story/23294881/medicare-study-examines-mental-health-effect-of-superstorm-sandy-to-improve-future-disaster-reponse

Pharmacy Choice
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.pharmacychoice.com/News/article.cfm?Article_ID=1095902

WBOC-TV
Medicare Study Examines Mental Health Effect of Superstorm Sandy to Improve Future Disaster Response
August 29, 2013
http://www.fox12delmarva.com/story/23294881/medicare-study-examines-mental-health-effect-of-superstorm-sandy-to-improve-future-disaster-reponse

NJ 101.5 FM
Sandy Mental Health Issues to Get Study
September 3, 2013
http://nj1015.com/post-sandy-mental-health-issues-to-get-study

NJ Spotlight
Rebuilding Lives: Helping Sandy Survivors Deals with Depression
September 3, 2013
http://www.njspotlight.com/stories/13/09/02/rebuilding-lives-helping-sandy-survivors-deal-with-depression/

NJ Spotlight
Many NJ Seniors at Risk for Depression, Government Survey Shows
February 3, 2014
http://www.njspotlight.com/stories/14/02/03/many-n-j-seniors-at-risk-for-depression-government-survey-shows/

The Philadelphia Inquirer
Many Seniors at Risk of Depression, Government Survey Says
February 3, 2014
http://www.philly.com/philly/blogs/njspotlight/njspotlight_20140204_Many_NJ_Seniors_at_Risk_for_Depression__Government_Survey_Shows.html

The Bergen Dispatch
Many NJ Seniors at Risk for Depression, Government Survey Shows
February 3, 2014
http://www.bergendispatch.com/articles/32001398/Manj-NJ-Seniors-at-Risk-for-Depression-Government-Survey-Shows.aspx

The Los Angeles Herald
Many NJ Seniors at Risk for Depression, Government Survey Shows
February 3, 2014
http://www.losangelesherald.com/index.php/sid/219980010/scat/e974f944f2e7496e

Overcome Depression
Many NJ Seniors at Risk for Depression, Government Survey Shows
February 3, 2014
http://www.overcome-depression-today.blogspot.com/2014/02/many-nj-seniors-at-risk-for-depression.html

Local Talk News
Medicare study finds 16 percent of Medicare recipients in Sandy-hit counties at risk for depression, yet few get screened
February 4, 2014
http://localtalknews.com/health/hospitals/1656-medicare-study-finds-16-percent-of-medicare-recipients-in-sandy-hit-counties-at-risk-for-depression-yet-few-get-screened.html

PR Web
Superstorm Sandy Study Finds 16 Percent of Medicare Recipients in Hard-Hit Communities at Risk for Depression, Yet Fewer than One Percent Receive Depression Screening
February 4, 2014
http://www.prweb.com/releases/2014/02/prweb11548358.htm

BioPortfolio
Superstorm Sandy Study Finds 16 Percent of Medicare Recipients in Hard-Hit Communities at Risk for Depression, Yet Fewer than One Percent Receive Depression Screening
February 4, 2014
http://www.bioportfolio.com/news/articles/Superstorm-Sandy-Study-Finds-16-Percent-of-Medicare-Recipients-in-Hard-Hit.html

Pharmacy Choice
Superstorm Sandy Study Finds 16 Percent of Medicare Recipients in Hard-Hit Communities at Risk for Depression, Yet Fewer than One Percent Receive Depression Screening
February 4, 2014
http://www.pharmacychoice.com/News/article.cfm?Article_ID=1159860

RedOrbit
Superstorm Sandy Study Finds 16 Percent of Medicare Recipients in Hard-Hit Communities at Risk for Depression, Yet Fewer than One Percent Receive Depression Screening
February 4, 2014
http://www.redorbit.com/news/health/1113062241/superstorm-sandy-study-finds-16-percent-of-medicare-recipients-in/#S8z1Ku7ufU0DEf7R.99

The Amboy Guardian
Data profile of Perth Amboy/Keasbey Community Details Rates of Depression, Related Health Conditions in Sandy-hit Areas
April 4

NJ Biz
Superstorm Sandy increased rates of depression, PTSD, alcohol and substance abuse
May 13, 2014
http://www.njbiz.com/article/20140513/NJBIZ01/140519943/Study:-Superstorm-Sandy-increased-rates-of-depression-PTSD-alcohol-and-substance-abuse

The Star-Ledger
NJ Seniors Experience Uptick in Depression, Anxiety after Sandy
May 14, 2014
http://www.nj.com/news/index.ssf/2014/05/nj_sandy_mental_health.html

Hudson Reporter
Study Reveals Superstorm Sandy's impact on seniors and the disabled
April 6, 2014
http://hudsonreporter.com/view/full_story/24881039/article-How-the-hurricane-hurt---Study-reveals-Superstorm-Sandy-s-impact-on-seniors-and-the-disabled--

The Hudson Reporter
How the Hurricane Hurt Study reveals Superstorm Sandy's impact on seniors and the disabled
April 6

Local Talk News
HQSI Quality Improvement Specialist Addresses Jersey City Leader
April 21, 2014
http://localtalknews.com/health/hospitals/1719-hqsi-quality-improvement-specialist-addresses-jersey-city-health-leaders.html

NJTV
New Jersey's Public Television Station reported on the HQSI Superstorm Sandy Study
May 19, 2014
https://www.youtube.com/watch?v=nGMBOvqfkPg

NJTV online
May 19, 2014
Healthcare Quality Strategies Director Says Anxiety, Depression Symptoms Will Not Show Immediately
http://www.njtvonline.org/news/video/healthcare-quality-strategies-direcotr-anxiety-and-depression-symtoms-will-not-show-immediately/

New Brunswick Today
Medicare Quality Contract Recipient Says Depression Screening Underutilized
May 20, 2014
http://newbrunswicktoday.com/article/medicare-quality-contract-recipient-says-depression-screening-under-utilized-0

Asbury Park Press
A brutal storm impacted Shore residents' mental health
June 17, 2014
http://www.app.com/story/life/wellness/2014/06/17/superstorm-sandy-depression/10541915/

USA Today
Report: Sandy left mental health issues in its wake
June 18, 2014
http://www.usatoday.com/story/news/nation/2014/06/18/report-sandy-left-mental-health-issues-in-its-wake/10723553/