





# A Study of Younger Medicaid Enrolled Nursing Home Residents With Mental Illness

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# A Study of Younger Medicaid Enrolled Nursing Home Residents with Mental Illness

## Executive Summary

The ability of nursing homes (NHs) to manage the physical and mental health needs of their residents is crucial to providing high-quality care. A key element is preventing the exacerbation of psychiatric conditions that may mask or worsen physical health conditions and trigger involuntary psychiatric, or Baker Act (BA), examinations and psychiatric hospitalizations. Because these events are particularly costly and disruptive for vulnerable NH residents, it is important to identify and control risk factors. The primary objectives of this study are to describe how Medicaid beneficiaries younger than 65 residing in Florida's nursing homes utilize health and human services, the costs associated with these services, the relationship between resident and facility characteristics, and the rate of BA examinations and psychiatric hospitalizations. The ultimate goal is to improve the quality of care for NH residents with mental health needs, and thus enhance their quality of life (QOL).

### Key Findings

We were able to gather valid Online Survey Certification and Reporting (OSCAR) and Medicaid data for a total of 647 facilities out of the 704 nursing homes in Florida. Within the facilities studied in this analysis, younger individuals represent a small proportion (15%) of the 72,223 Medicaid enrolled NH residents who had lived there for at least one year. Nonetheless, serving this population is costly for Medicaid. The total annualized Medicaid expenditure for younger residents was \$645,907,696. Average Medicaid expenditures per resident per month (PRPM) were \$4,907. Our findings also show an annual per-resident Medicaid expenditure of \$1,532 in behavioral health (BH) services, which is certainly considerable. The vast majority of BH expenditures (88%) were for medication and inpatient care.

There were 516 involuntary psychiatric or BA examinations during the study timeframe, most commonly among Whites and nursing home residents with a prior state hospital stay. The latter group was 87% more at risk of requiring an involuntary examination. Those diagnosed with dementia and all serious mental illness (SMI) were significantly more likely to undergo a BA examination. Residents with a major psychotic disorder had about a 17-fold increase in the odds of a BA examination, the strongest impact for any population in this study. Although not statistically significant, a higher level

of co-morbidity as measured by the Charlson Index score was another factor tied to the increased likelihood of an examination. Among the facilities analyzed in this report, only those with fewer than 120 beds had a slightly higher probability of their residents undergoing a BA examination.

A similar trend exists with behavioral health (BH) hospitalizations, as White residents and those with a prior state hospital stay were most likely to experience this during the study time period. Likewise, having dementia or a SMI diagnosis were also significant risk factors. In fact, the risk of a BH hospitalization was 88% higher for persons who were previously patients in a state hospital. There was a 34-fold increase for persons with a major psychotic disorder. Co-morbidity as measured by the Charlson Index score was also associated with a marked increase in BH hospitalization. For example, a score of 1 or more increased the odds of a BH hospitalization by about 53%. Meanwhile, facilities with a higher proportion of SMI residents experienced more than triple the rate of BH hospitalizations ( $p < 0.001$ ).

Among residents experiencing a BA examination, 88% received psychotropic medication before the event. Less than half (40%) of the residents with a BA examination received non-pharmacological BH services in advance. Among residents with a BH hospitalization, 89% received psychotropic medication prior to their hospitalization. However, only 55% of those residents received non-pharmacological BH services. Our findings also show that 99% of all BH expenditures for residents within the NH were used to provide medication and inpatient psychiatric services. Less than 1% was spent on outpatient BH services.

## Conclusions and Policy Recommendations

This study demonstrates that the rate of BA examinations and BH hospitalizations is based on specific characteristics among both nursing homes and individual residents. For instance, younger residents, Whites, persons with SMI or dementia, those on SSI, or residents previously in a state hospital were most at risk for a BA examination and BH hospitalization. Particularly troubling is the fact that roughly half of the younger residents experiencing a BA examination and 47% of residents with a BH hospitalization had Alzheimer's disease or other dementia. When transferred to a hospital or BA facility, their SMI and dementia places them at high risk for relocation stress syndrome (RSS), a condition that is associated with increased mortality and morbidity. Therefore, everything possible should be done to decrease these transfers.

Study results also indicate that further longitudinal research is warranted to determine if the identified patterns of BH hospitalization, BA examination, and associated expenditures remain constant over time. These services currently require significant Medicaid expenditures, and their likelihood is seemingly connected to the characteristics of individual residents.

Findings show that with the exception of medication, very few BH assessments, consultations or intervention services were provided to residents within their nursing homes. Our semi-structured interviews with NH administrators and line staff indicate that increased staffing and targeted BH programs would help meet the mental health needs of residents with serious and persistent mental illness. Implementation of these measures might reduce the need for BA examinations and BH hospitalizations as a result. Specialized BH programs for NH residents also could reduce associated costs for both physical and mental health care services.

## Introduction

The Health Care Financing Administration (HCFA) has stated that “mental health is central to the overall well-being of all our beneficiaries, including younger nursing home residents” and that “monitoring these residents’ care and treatment and maintaining accurate nursing facility information is essential to their well being.” This study will provide AHCA with important information about the care and treatment of younger Medicaid beneficiaries with mental illness who reside in Florida nursing homes.

The federal Omnibus Budget Reconciliation Act, also known as the Nursing Home Reform Act (OBRA 1987, P.L. 100-203), targeted the problem of persons with serious mental illness (SMI) being discharged from state hospitals into nursing homes. This legislation focuses on residents who either do not require nursing home (NH) care or whose needs cannot be met in such an environment. As a result, increased attention has been focused on improving mental health services provided to NH residents (Bartels, Miles, Dums, & Levine, 2003; Bartels, Moak, & Dums, 2002; Bartels, Mueser, & Miles, 1997; Mosher-Ashley, Turner, & O’Neill, 1991; Zinn, Aaronson, & Rosko, 1993). Unfortunately, the implementation of OBRA has been exceedingly slow and there is anecdotal evidence of persons with mental illness being inappropriately placed in nursing homes (Mechanic & McAlpine, 2000).

Research indicates that, compared with the general population, NH residents experience high levels of mental health problems and are at increased risk for hospitalization (Avorn et al., 1992; Burns, 1991; Kane, Ouslander, & Abrass, 2004; Castle & Mor, 1996; Intrator, Castle, & Mor, 1999; Intrator, Zinn, & Mor, 2004; Kim & Rovner, 1996; Streim, Rovner, & Katz, 1996). Empirical data indicates that approximately 80% of residents have a diagnosable psychiatric disorder (Kim & Rovner, 1995; Strahan, 1997). More than 40% have a depressive disorder, and approximately 20% have an anxiety disorder (Jones, Marcantonio, & Rabinowitz, 2003; Parmelee, Katz, & Lawton, 1993; Rogers, Marin, Mulsant, Shabar, & Robert, 1997; Rosen et al., 1997). Despite these statistics, research suggests that few residents receive appropriate psychiatric treatment. For example, less than 20% of persons with a mental health disorder are treated by a mental health professional (Bartels, Moak, & Dums, 2002; Shea, Russo, & Smyer, 2000; Shea, Streit, & Smyer, 1994).

## Younger Nursing Home Residents

Although the average age of NH residents nationally is 81 years old, younger residents (under the age of 65) comprise about 9% of the NH population (Gabrel & Jones, 2000). Younger residents are a growing concern to policymakers, yet academic and government researchers have largely

ignored this population in the past (Jervis, 2002; Strahan, 1997). This lack of attention also extends to mental health research, as evidenced by the comparative absence of literature on the service needs of younger individuals with psychiatric disorders. (Bartels, Mueser, & Miles, 1997; Laird, 1993; McGrew, 1999; Polivka, Salmon, Hyer, Johnson, & Hedgecock, 2003). In Florida, almost one third (29%) of Medicaid-enrolled NH residents diagnosed with SMI are younger than 65 (Becker & Meher, 2005).

## Overall Study Design and Objectives

The current study used both quantitative and qualitative methods to reinforce our prior research regarding the treatment of NH residents with SMI in Florida (Becker & Mehra, 2005; Becker, Andel & Boaz, 2007). The primary objectives were to examine services used by younger residents and their cost, as well as the association between resident characteristics, facility characteristics, and the rate of Baker Act (BA) examinations and behavioral health (BH) hospitalizations. The ultimate goal is to improve the quality of life and care for NH residents under the age of 65 with serious mental illness.

### Specific Aims

**Aim 1:** Examine the relationship between NH facility characteristics and the prevalence of BA examinations and psychiatric hospitalizations for younger Medicaid-enrolled NH residents (defined as under the age of 65).

**Aim 2:** Describe the demographic and diagnostic characteristics of younger Medicaid-enrolled NH residents who experience a BA examination or psychiatric hospitalization.

**Aim 3:** Describe the demographic and diagnostic characteristics of younger Medicaid-enrolled NH residents who previously resided in a state psychiatric hospital.

**Aim 4:** Identify the mental health services (including pharmacotherapy) provided, to younger NH residents before and after a BA examination or psychiatric hospitalization, and the resulting cost to Medicaid.

**Aim 5:** Delineate risk factors for a BA examination and psychiatric hospitalization among younger residents.

**Aim 6:** Explore the perspective of NH administrators and line staff as it relates to the mental health service needs of younger NH residents with SMI, as well as their reasons for conducting a BA examination or psychiatric hospitalization.

### Research Questions

- 1) What is the relationship between NH facility characteristics and the prevalence of BA examinations and psychiatric hospitalizations for Medicaid-enrolled residents younger than 65?

- 2) Within the Florida Medicaid program, what are the demographic, diagnostic, and treatment characteristics of younger NH residents who experience a BA examination or psychiatric hospitalization?
- 3) What are the demographic and diagnostic characteristics of younger NH residents who are covered by Medicaid, and previously resided in a state psychiatric hospital?
- 4) What mental health services, including pharmacotherapy, were provided to Medicaid-enrolled residents before and after their BA examination or psychiatric hospitalization, and what was the cost to Medicaid?
- 5) What factors predict a BA examination and psychiatric hospitalization for younger Medicaid-enrolled residents?
- 6) From a staff perspective, what are the service needs of younger residents with SMI, what precipitates a BA examination or psychiatric hospitalization, and what impact do these events have for the facility and the residents?

## Data Sets and Methods

### Data Sets

We used four years (FY 2002-06) of Medicaid enrollment, pharmacy, and fee-for-service data to examine NH resident characteristics and service use. Two years (2003 and 2004) of Online Survey Certification and Reporting (OSCAR) data were used to identify characteristics of the nursing facilities involved. Episodes of involuntary psychiatric examination orders were identified through AHCA's Baker Act database, and the Minimum Data Set for State Institutions (MDSSI) was used to identify residents previously residing in a state psychiatric hospital since 1990.

### Sampling Framework

Our study sample included all nursing homes in Florida that had a valid Medicaid Provider identification number (ID) and could be matched with corresponding OSCAR facility data (N = 647). Medicaid institutional detail claims were used to identify episodes of NH residency during FY 2003-04.

Episodes were defined as a continuous period of at least 30 days (with no intervening gaps greater than 30 days) during which the person had Medicaid claims for nursing home room & board charges. For residents with more than one such episode of nursing home care during the study period, the first episode was used for analysis. A small number of cases were eliminated from the sample either because they were not continuously enrolled in Medicaid throughout the identified episode, or they were enrolled in an HMO or PMHP for more than 30 days during the episode.

A total of 72,223 Medicaid enrolled residents met inclusion criteria for this study. Of these, 10,808 residents were under age 65 at the beginning of their nursing home stay. Data for service use, hospitalizations, and Baker Act events for each resident were extracted from the entire nursing home episode within the study timeframe (July 1, 2002 to June 30, 2006). Resident demographics were obtained from the Medicaid recipient information files. Diagnosis and Charlson Index scores were based on available Medicaid claims data. Diagnosis of a mental disorder was determined by the presence of an appropriate ICD-9-CM code in the claims data (see Table 1). Dual Medicaid and Medicare enrollment status and SSI status were based on enrollment information obtained during the nursing home stay.

**Table 1.**

<b>Diagnosis</b>	<b>Description</b>
<b>Disorders comprising definition of Serious Mental Illness (SMI)</b>	
Major psychotic disorder	Anyone with an ICD-9 diagnosis code beginning with 295 (schizophrenia), 297.1 (delusional disorder), 297.3 (shared psychotic disorder), 298.8 (brief psychotic disorder), or 298.9 (psychotic disorder NOS)
Bipolar disorder	Anyone without a major psychotic disorder and with an ICD-9 diagnosis code beginning with 296.0, 296.1, 296.4, 296.5, 296.6, 296.7, or 296.80 or 296.89
Major affective disorder	Anyone without a major psychotic disorder, bipolar disorder and with an ICD-9 diagnosis code beginning with 296.2, 296.3, 296.90 & 311
<b>Other Diagnoses</b>	
Alcohol use disorder	Anyone with an ICD-9 diagnosis code beginning with 291, 303.0, 303.3, 303.9, & 305.0
Drug use disorder	Anyone with an ICD-9 diagnosis code beginning with 292.0-292.9, 304.0- 304.9, & 305.2-305.9

Univariate and bivariate statistics are used to describe the younger resident population with SMI along with multilevel multinomial logistic regression analysis. This is also the basis for examining risk factors for a BA examination or psychiatric hospitalization.

In addition to the quantitative data, qualitative data was obtained by interviewing key facility administrators and nursing staff who were randomly selected from a stratified samples of nursing homes with high, medium, and low percentages of residents with SMI. We sought their perceptions of the mental health needs of younger residents and the risk factors for BA examinations and BH hospitalizations.

## Results

### Question 1: What is the relationship between the characteristics of an NH facility and the prevalence of BA examinations and BH hospitalizations?

Tables 2a, 2b, and 2c present facility characteristics for all eligible facilities. Of the 704 nursing homes in Florida, we were able to gather valid OSCAR and Medicaid data for a total of 647 facilities. Data was unable to be matched for the remaining 57 nursing homes because of missing and duplicate Medicaid IDs and/or incomplete OSCAR files.

### Overall Facility Characteristics

Study results indicate that 62% of nursing homes were part of a chain, 76% were for-profit, and 69% had 120 or more beds. On average, just 23% of NH residents were private pay, and the average yearly occupancy rate was about 88%. Only 31 of the 647 facilities (5%) met Center for Medicaid Services (CMS) registered nurse (RN) staffing level requirements. This finding is of concern in light of prior research showing that adequate RN staffing levels improve service delivery (Steffen, 1997; Polivka, Salmon, Hyer, Johnson, Hedgecock, 2003). In addition, almost two thirds of facilities (64%) had a quality of care (QoC) citation.

### Facility Characteristics and BA Examination

Nursing home characteristics related to BA examinations are presented in Table 2a. Almost a third (29%) of facilities initiated at least one BA examination during the study timeframe. These examinations were more common for residents residing in larger nursing homes (with 120 beds and above) and for-profit facilities, as well as in facilities with fewer Medicare beds, facilities with fewer private-pay residents, and facilities with higher proportions of residents with SMI according to unadjusted descriptive results. A total of 190 facilities initiated 516 BA examinations and the vast majority (73%) had occupancy rates below 95%. More than half had a high percentage of residents with SMI.

**Table 2a. Facility Characteristics and Baker Act Examinations**

Facility Characteristic	BA Examinations						
	Total		Yes		No		# of Exams
	N	%	N	%	N	%	N
	647	100	190	29.4	457	70.6	516
<b>Ownership Type</b>							
For profit	494	76.3	151	79.5	343	75.0	380
Not for profit	153	23.7	39	20.5	114	25.0	136
<b>Multi-Facility Ownership</b>							
Member of a chain	402	62.1	122	64.2	280	61.3	327
Not member of a chain	245	37.9	68	35.8	177	38.7	189
<b>Size</b>							
Below 120 beds	201	31.1	53	27.9	148	32.4	153
120 beds and above	446	68.9	137	72.1	309	67.6	363
<b>Medicaid Characteristics</b>							
Average private pay, %	--	22.8	--	15.6	--	25.7	--
Medicaid beds above median	305	47.1	137	72.1	168	36.8	425
Medicaid beds below median	342	52.9	53	27.9	289	63.2	91
Medicare beds above median	317	49.0	64	33.7	253	55.4	105
Medicare beds below median	330	51.0	126	66.3	204	44.6	411
<b>Quality Characteristics</b>							
Total citations, above median	327	50.5	110	57.9	217	47.5	349
Total citations, below median	320	49.5	80	42.1	240	52.5	167
Had a QoI citation	376	58.1	124	65.3	252	55.1	364
Had a QoC citation	413	63.8	117	61.6	296	64.8	326
Had citation for abuse/neglect	110	17.0	33	17.4	77	16.9	113
<b>Nursing Staff (RN) Ratio</b>							
Meets CMS RN staffing	31	4.8	4	2.1	27	5.9	9
Below CMS RN staffing	616	95.2	186	97.9	430	94.1	507
<b>Occupancy Characteristics</b>							
Average yearly occupancy, %	--	87.6	--	85.1	--	88.7	--
Below 95%	421	65.1	139	73.2	282	61.7	409
95% and above	226	34.9	51	26.8	175	38.3	107
<b>Ratio of persons with SMI Over Facility Bed Size</b>							
Low (below 18 %)	215	33.2	21	11.1	194	42.5	25
Medium (18% to 28%)	216	33.4	66	34.7	150	32.8	116
High (above 28%)	216	33.4	103	54.2	113	24.7	375

## Facility Characteristics and BH Hospitalizations

Facility characteristics related to BH hospitalization are presented in Table 2b. Behavioral health hospitalizations were more frequent than Baker Act examinations. The Medicaid claims files documented 616 separate BH hospitalizations. Data indicates that the same general pattern exists in the facility characteristics associated with BH and BA hospitalizations. Financial resources available for care are limited by the presence of fewer private pay residents, fewer Medicare beds and an occupancy rate below 95%. These factors may contribute to an inability for nursing homes to hire and maintain an adequate registered nursing (RN) staff.

## Facility Characteristics and Non-Behavioral Health Hospitalizations

Table 2c presents facility characteristics by non-BH hospitalizations. As expected, there were many more hospitalizations for acute physical health conditions (PHC) than for BH-related symptoms ( $n = 11,186$ ). PHC Hospitalizations occurred in the majority (84%) of facilities. The primary difference in nursing home characteristics associated with BA examinations and BH hospitalizations compared to PHC hospitalizations was the higher proportion of persons with SMI in facilities where non-BH hospitalizations were more frequent.

**Table 2b. Facility Characteristics and BH Hospitalizations**

Facility Characteristic	Total		Behavioral Health Hospitalizations				# of BH Hospitalizations
			Yes		No		
	N	%	N	%	N	%	N
	647	100	195	31.0	452	69.0	616
<b>Ownership Type</b>							
For profit	494	76.3	153	78.5	341	75.4	471
Not for profit	153	23.7	42	21.5	111	24.6	145
<b>Multi-Facility Ownership</b>							
Member of a chain	402	62.1	115	59.0	287	63.5	373
Not member of a chain	245	37.9	80	41.0	165	36.5	243
<b>Size</b>							
Below 120 beds	201	31.1	55	28.2	146	32.3	150
120 beds and above	446	68.9	140	71.8	306	67.7	466
<b>Medicaid Characteristics</b>							
Average private pay, %	--	22.8	--	15.8	--	25.8	--
Medicaid beds above median	305	47.1	144	73.9	161	35.6	532
Medicaid beds below median	342	52.9	51	26.1	291	64.4	84
Medicare beds above median	317	49.0	61	31.3	256	56.6	101
Medicare beds below median	330	51.0	134	68.7	196	43.4	515
<b>Quality Characteristics</b>							
Total citations, above median	327	50.5	118	60.5	209	46.2	418
Total citations, below median	320	49.5	77	39.5	243	53.8	198
Had a QoI citation	376	58.1	132	67.7	244	54.0	451
Had a QoC citation	413	63.8	117	60.0	296	65.5	373
Had citation for abuse/neglect	110	17.0	34	17.4	76	16.8	192
<b>Nursing Staff (RN) Ratio</b>							
Meets CMS RN staffing	31	4.8	7	3.6	24	5.3	11
Below CMS RN staffing	616	95.2	188	96.4	428	94.7	605
<b>Occupancy Characteristics</b>							
Average yearly occupancy, %	--	87.6	--	84.6	--	88.9	--
Below 95%	421	65.1	147	75.4	274	60.6	477
95% and above	226	34.9	48	24.6	178	39.4	139
<b>Ratio of persons with SMI Over Facility Bed Size</b>							
Low (below 18 %)	215	33.2	17	8.7	198	43.8	24
Medium (18% to 28%)	216	33.4	68	34.9	148	37.7	99
High (above 28%)	216	33.4	110	56.4	106	23.5	493

**Table 2c. Facility Characteristics and Non-BH hospitalizations**

Facility Characteristic	Total		Non-Behavioral Health Hospitalizations				# of non-BH Hospitalizations
			Yes		No		
	N	%	N	%	N	%	N
	647	100	542	83.8	105	16.2	11,186
<b>Ownership Type</b>							
For profit	494	76.3	435	80.3	59	56.2	8,714
Not for profit	153	23.7	107	19.7	46	43.8	2,472
<b>Multi-Facility Ownership</b>							
Member of a chain	402	62.1	348	64.2	54	51.4	7,092
Not member of a chain	245	37.9	194	35.8	51	48.6	4,094
<b>Size</b>							
Below 120 beds	201	31.1	145	26.8	56	53.3	2,131
120 beds and above	446	68.9	397	73.2	49	46.7	9,055
<b>Medicaid Characteristics</b>							
Average private pay, %	--	22.8	--	19.3	--	40.7	--
Medicaid beds above median	305	47.1	297	54.8	8	7.6	8,511
Medicaid beds below median	342	52.9	245	45.2	97	92.4	2,675
Medicare beds above median	317	49.0	255	47.1	62	59.1	3,080
Medicare beds below median	330	51.0	287	52.9	43	40.9	8,106
<b>Quality Characteristics</b>							
Total citations, above median	327	50.5	287	52.9	40	38.1	7,378
Total citations, below median	320	49.5	255	47.1	65	61.9	3,808
Had a Qol citation	376	58.1	329	60.7	47	44.8	8,161
Had a QoC citation	413	63.8	354	65.3	59	56.2	7,996
Had citation for abuse/neglect	110	17.0	94	17.3	16	15.2	2,366
<b>Nursing Staff (RN) Ratio</b>							
Meets CMS RN staffing	31	4.8	21	3.9	10	9.5	535
Below CMS RN staffing	616	95.2	521	96.1	95	90.5	10,651
<b>Occupancy Characteristics</b>							
Average yearly occupancy, %	--	87.6	--	87.7	--	87.3	--
Below 95%	421	65.1	357	65.9	64	60.9	8,348
95% and above	226	34.9	185	34.1	41	39.1	2,838
<b>Ratio of persons with SMI Over Facility Bed Size</b>							
Low (below 18 %)	215	33.2	143	26.4	72	68.6	1,398
Medium (18% to 28%)	216	33.4	199	36.7	17	16.2	3,360
High (above 28%)	216	33.4	200	36.9	16	15.2	6,428

## Question 2: Within the Florida Medicaid program, what are the demographic, diagnostic and treatment characteristics of younger NH residents who receive a BA examination or behavioral health (BH) hospitalization?

### Overall Resident Characteristics

Demographic and diagnostic characteristics of the resident sample are illustrated in Tables 3a-3d. The total sample included 10,808 residents under the age of 65 years. A majority (58%) of residents were White and more than half (55%) were male. The mean age was 52 years. Less than half (45%) had an SMI diagnosis (defined here as a diagnosis of schizophrenia, bipolar disorder or major affective disorder). A small number (10%) had an alcohol use disorder and 7% had a drug use disorder. Less than 3% of the sample (261 residents) had a prior state hospital stay and about 2% (224 residents) were younger than 21 years of age.

### Resident characteristics and BA Examinations

During the study timeframe, a total of 516 BA examinations were administered to 383 residents. The frequency of BA examinations ranged from one to seven, though most individuals underwent only one examination during the study timeframe. Table 3a shows that when viewed as a percentage of the total resident population; males, residents 22-64 years old, and residents with major psychotic disorder were most likely to be given a BA examination. Males comprised approximately 54% of the study population and accounted for 58% of examined residents. Minorities made up about 42% of the study population, and accounted for a smaller proportion (35%) of BA-examined individuals. Although about 24% of the study participants had a diagnosis of Alzheimer's disease (AD) or other dementia, the proportion of those diagnosed with dementia who underwent an involuntary psychiatric examination was more than twice as large (50%). About half of the residents with a BA examination were in poorer physical health with a Charlson Index score above the mean of 1.9. Meanwhile, residents with a prior state hospital stay were much more likely to be examined. They comprised only 2.4% of the participant population but had over 10% of all BA examinations.

### Resident Characteristics and BH Hospitalizations

About half of our sample (5,141 residents or 48%) had at least one non-BH hospitalization for an acute physical health condition. They underwent a total of 11,186 non-BH hospitalizations, which ranged in frequency from one to thirty-two. While most residents experienced only one or two hospitalizations during the study timeframe, 91 residents had 10 or more non-BH hospitalizations. Table 3c shows an increased likelihood among residents with poorer health, those with a major affective disorder, and individuals with a diagnosis of dementia. More than half of residents with major affective disorder (56%) and residents with Alzheimer's disease (AD) or other dementia (55%) had at least one non-BH hospitalization. They accounted for only 2.4% of the population but had 10.2% of the BH hospitalizations, a figure that closely mirrors the BA examination rate.

**Table 3a. Resident Characteristics and Baker Act Examinations**

Resident Characteristic	Total		Baker Act Examinations				# of Exams
			Yes		No		
	N	%	N	%	N	%	N
	10,808	100	383	3.5	10,425	96.5	516
<b>Age</b>							
21 years or younger	224	2.1	1	0.3	223	2.1	1
22-64 years	10,584	97.9	382	99.7	10,202	97.9	515
All, mean (SD)	52.2 (10.8)	--	53.2 (8.4)	--	52.2 (10.8)	--	--
<b>Gender</b>							
Male	5,898	54.6	222	58.0	5,676	54.5	284
Female	4,910	45.4	161	42.0	4,749	45.5	232
<b>Race</b>							
White	6,247	57.8	248	64.7	5,999	57.5	333
Black	3,166	29.3	93	24.3	3,073	29.5	125
Other	648	6.0	16	4.2	632	6.1	23
Hispanic	747	6.9	26	6.8	721	6.9	35
<b>SMI Diagnosis</b>							
Major psychotic	2,542	23.5	295	77.0	2,247	21.5	420
Bipolar disorder	343	3.2	16	4.2	327	3.1	18
Major affective	1,965	18.2	36	9.4	1,929	18.5	37
SMI population	4,850	44.9	347	90.6	4,503	43.2	475
<b>Other MH Disorder</b>							
Alzheimer's Disease	462	4.3	32	8.4	430	4.1	44
Other Dementia	2,176	20.1	158	41.2	2,018	19.4	201
Mental Retardation	548	5.1	41	10.7	507	4.9	72
Alcohol use disorder	1,117	10.3	46	12.0	1,071	10.3	60
Drug use disorder	753	7.0	30	7.8	723	6.9	44
Other MH diagnosis	845	7.8	5	1.3	840	8.1	6
HIV	680	6.3	19	5.0	661	6.3	29
<b>Other Characteristics</b>							
Charlson Index, mean (SD)	1.9 (2.0)	--	2.1 (1.8)	--	1.9 (2.0)	--	--
Dual eligibility	6,297	58.3	246	64.2	6,051	58.0	337
Prior state hospital stay	253	2.3	40	10.4	213	2.0	60
SSI	4,172	38.6	150	39.2	4,022	38.6	209

**Table 3b. Resident Characteristics and Behavioral Health Hospitalizations**

Resident Characteristic	Total		Behavioral Health Hospitalizations				# of BH Hospitalizations
			Yes		No		
	N	%	N	%	N	%	N
	10,808	100	460	4.3	10,348	95.7	616
<b>Age</b>							
21 years or younger	224	2.1	2	0.4	222	2.1	2
22-64 years	10,584	97.9	458	99.6	10,126	97.9	614
All, mean (SD)	52.2 (10.8)	--	52.8 (8.7)	--	52.2 (10.8)	--	--
<b>Gender</b>							
Male	5,898	54.6	255	54.4	5,643	54.5	310
Female	4,910	45.4	205	45.6	4,705	45.5	306
<b>Race</b>							
White	6,247	57.8	269	58.5	5,978	57.8	363
Black	3,166	29.3	128	27.8	3,038	29.4	163
Other	648	6.0	25	5.4	623	6.0	38
Hispanic	747	6.9	38	8.3	709	6.9	52
<b>SMI Diagnosis</b>							
Major psychotic	2,542	23.5	376	81.7	2,166	20.9	526
Bipolar disorder	343	3.2	18	3.9	325	3.1	21
Major affective	1,965	18.2	47	10.2	1,918	18.5	49
SMI population	4,850	44.9	441	95.9	4,409	42.6	596
<b>Other MH Disorder</b>							
Alzheimer's Disease	462	4.3	45	9.8	417	4.0	71
Other Dementia	2,176	20.1	170	37.0	2,006	19.4	225
Mental Retardation	548	5.1	45	9.8	503	4.9	72
Alcohol use disorder	1,117	10.3	79	17.2	1,038	10.0	102
Drug use disorder	753	7.0	56	12.2	697	6.7	74
Other MH diagnosis	845	7.8	3	0.6	842	8.1	3
HIV	680	6.3	41	8.9	639	6.2	61
<b>Other Characteristics</b>							
Charlson Index, mean (SD)	1.9 (2.0)	--	2.4 (1.9)	--	1.9 (2.0)	--	--
Dual eligibility	6,297	58.3	202	43.9	6,095	58.9	246
Prior state hospital stay	253	2.3	47	10.2	206	2.0	58
SSI	4,172	38.6	263	57.2	3,909	37.8	377

### Resident Characteristics and Non-BH Hospitalizations

About half of our sample (5,141 residents or 48%) had at least one non-BH hospitalization for an acute physical health condition. They underwent a total of 11,186 non-BH hospitalizations, which ranged in frequency from one to thirty-two. While most residents experienced only one or two

hospitalizations during the study timeframe, 91 residents had 10 or more non-BH hospitalizations. Table 3c shows an increased likelihood among residents with poorer health, those with a major affective disorder, and individuals with a diagnosis of dementia. More than half of residents with major affective disorder (56%) and residents with Alzheimer’s disease (AD) or other dementia (55%) had at least one non-BH hospitalization.

**Table 3c. Resident Characteristics and Non-BH Hospitalizations**

Resident Characteristic	Non-Behavioral Health Hospitalizations						
	Total		Yes		No		# of non-BH Hospitalizations
	N	%	N	%	N	%	N
	10,808	100	5,141	47.6	5,667	52.4	11,186
<b>Age</b>							
21 years or younger	224	2.1	146	2.8	78	1.4	485
22-64 years	10,584	97.9	4,995	97.2	5,589	98.6	10,701
All, mean (SD)	52.2 (10.8)	--	51.9 (11.5)	--	52.5 (10.0)	--	--
<b>Gender</b>							
Male	5,898	54.6	2,802	54.5	3,096	54.6	6,078
Female	4,910	45.4	2,339	45.5	2,571	45.4	5,108
<b>Race</b>							
White	6,247	57.8	2,821	54.9	3,426	60.5	5,683
Black	3,166	29.3	1,628	31.7	1,538	27.1	3,768
Other	648	6.0	315	6.1	333	5.9	808
Hispanic	747	6.9	377	7.3	370	6.5	927
<b>SMI Diagnosis</b>							
Major psychotic	2,542	23.5	1,280	24.9	1,262	22.3	2,976
Bipolar disorder	343	3.2	185	3.6	158	2.8	401
Major affective	1,965	18.2	1,091	21.2	874	15.4	2,395
SMI population	4,850	44.9	2,556	49.7	2,294	40.5	5,772
<b>Other MH Disorder</b>							
Alzheimer’s Disease	462	4.3	235	4.6	227	4.0	491
Other Dementia	2,176	20.1	1,224	23.8	952	16.8	2,871
Mental Retardation	548	5.1	303	5.9	245	4.3	754
Alcohol use disorder	1,117	10.3	470	9.1	647	11.4	1,026
Drug use disorder	753	7.0	331	6.4	422	7.5	759
Other MH diagnosis	845	7.8	451	8.8	394	6.9	1,049
HIV	680	6.3	340	6.6	340	6.0	771
<b>Other Characteristics</b>							
Charlson Index, mean (SD)	1.9 (2.0)	--	2.3 (2.0)	--	1.5 (1.8)	--	--
Dual eligibility	6,297	58.3	2,898	56.4	3,399	60.0	5,411
Prior state hospital stay	253	2.3	100	2.0	153	2.7	195
SSI	4,172	38.6	2,147	41.8	2,025	35.7	5,502

### Question 3: Within the Florida Medicaid program, what are the demographic diagnostic characteristics of NH residents who were previously residing in a state psychiatric hospital?

Demographic and diagnostic characteristics of the NH residents with a prior state hospital stay are presented in Table 3d. Data shows that residents with a prior state hospital stay were more likely to be male (55%), White (65%), and slightly older than the general NH population (53.6 years). They were almost twice as likely to have a diagnosis of SMI and three times more likely to have a major psychotic disorder compared to residents without a prior state hospital stay. Prior state hospital patients also had a higher use disorder rate for alcohol (13%) and drugs (10%). While the mental health data indicates that residents with a prior state hospital stay were in poorer mental health, their mean Charlson Index score of 1.6 was below the mean for the general NH population. This suggests they were in slightly better physical health than residents without a prior state hospital stay (see Table 3d). To our knowledge, this is the first study to identify these factors for NH residents with a prior state hospital stay. Although this population is small (n = 253), these residents warrant further study given the scant information available about their characteristics and the corresponding risk for both BA examination and BH hospitalization.

**Table 3d. Resident Characteristics and Prior State Hospitalizations**

Resident Characteristic	Total		Prior State Hospitalizations				# of State Hospitalizations
			Yes		No		
	N	%	N	%	N	%	N
	10,808	100	253	2.3	10,555	97.7	380
<b>Age</b>							
21 years or younger	224	2.1	0	0.0	224	2.1	0
22-64 years	10,584	97.9	253	100	10,331	97.9	380
All, mean (SD)	52.2 (10.8)	--	53.6 (7.8)	--	52.2 (10.8)	--	--
<b>Gender</b>							
Male	5,898	54.6	140	55.3	5,758	54.5	229
Female	4,910	45.4	113	44.7	4,797	45.5	151
<b>Race</b>							
White	6,247	57.8	164	64.8	6,083	57.6	245
Black	3,166	29.3	72	28.5	3,094	29.3	109
Other	648	6.0	9	3.6	639	6.1	16
Hispanic	747	6.9	8	3.2	739	7.0	10
<b>SMI Diagnosis</b>							
Major psychotic	2,542	23.5	194	76.7	2,348	22.3	315
Bipolar disorder	343	3.2	5	2.0	338	3.2	7
Major affective	1,965	18.2	18	7.1	1,947	18.5	18
SMI population	4,850	44.9	217	85.8	4,633	43.9	340
<b>Other MH Disorder</b>							
Alzheimer's Disease	462	4.3	22	8.7	440	4.2	27
Other Dementia	2,176	20.1	77	30.4	2,099	19.9	100
Mental Retardation	548	5.1	25	9.9	523	5.0	35
Alcohol use disorder	1,117	10.3	32	12.7	1,085	10.3	60
Drug use disorder	753	7.0	24	9.5	729	6.9	47
Other MH diagnosis	845	7.8	2	0.8	843	8.0	2
HIV	680	6.3	12	4.7	668	6.3	20
<b>Other Characteristics</b>							
Charlson Index, mean (SD)	1.9 (2.0)	--	1.6 (1.5)	--	1.9 (2.0)	--	--
Dual eligibility	6,297	58.3	170	67.2	6,127	58.1	256
Prior state hospital stay	253	2.3	--	--	--	--	--
SSI	4,172	38.6	97	38.3	4,075	38.6	150

**Question 4: What mental health services, including pharmacotherapy, were provided to residents before and after their BA examination or psychiatric hospitalization and what were the total Medicaid expenditures for this population?**

Tables 4a-4d present data on residents' service use for the month immediately before and after their first BA examination and their first BH hospitalization. Meanwhile, Table 4a and 4b reveal that most residents who had a BA examination were provided psychotropic medication both before (88%), and after (90%) being examined. In general, there was a slight increase in the number of persons taking antipsychotic, antidepressant or other psychotropic medication after their BA examination. However, less than half (40%) of the residents who had a BA examination were given non-pharmacological outpatient BH services in advance, while a slightly higher proportion (48%) received these services after it concluded. This study reviewed all out-patient services with a BH diagnosis on the claim, as well as those procedure codes (e.g. counseling) that were by definition considered a BH service.

**Table 4a. Baker Act examinations by services provided**

	Provided Behavioral Health Services				Provided Psychotropic Medication			
	Yes		No		Yes		No	
	N	%	N	%	N	%	N	%
Before	150	40	229	60	332	88	47	12
After	183	48	196	52	341	90	38	10

**Table 4b. Baker Act examinations by services provided**

	Provided Antipsychotic Medication				Provided Antidepressant Medication			
	Yes		No		Yes		No	
	N	%	N	%	N	%	N	%
Before	261	69	118	31	212	56	167	44
After	283	75	96	25	215	57	164	43

The pattern of service use prior to and after a BH hospitalization is only slightly different than the one observed before and after a BA examination. Table 4c and 4d reveal that almost all (89%) of residents who had a BH hospitalization were provided psychotropic medication before and after (88%) their BH hospitalization. More than half received antipsychotic medication (69%) and antidepressant medication (57%) in the month preceding their BH hospitalization. A little more than half (55%) of hospitalized residents were receiving non-pharmacological BH services in advance, while a slightly smaller proportion (53%) received them after their BH hospitalization.

**Table 4c. Behavioral Health hospitalizations by services provided**

	Provided Behavioral Health Services				Provided Psychotropic Medication			
	Yes		No		Yes		No	
	N	%	N	%	N	%	N	%
Before	251	55	203	45	404	89	50	11
After	240	53	214	47	398	88	56	12

**Table 4d. Behavioral Health hospitalizations by services provided**

	Provided Antipsychotic Medication				Provided Antidepressant Medication			
	Yes		No		Yes		No	
	N	%	N	%	N	%	N	%
Before	311	69	143	31	261	57	193	43
After	332	73	122	27	262	58	192	42

Table 4e presents an overview of Florida Medicaid expenditures provided for younger nursing home residents in this study. It details per resident per month (PUPM) costs, the mean number of events (visits), average per resident per month (PRPM) penetration rates, and average per resident (PR) annual costs. Data indicates that treatment costs are very high for these younger NH residents. For instance, the average monthly expenditure per resident was \$4,909 and the average annual expenditure was \$59,764. A considerable amount is spent annually by Medicaid to provide behavioral health services for this population (an average of \$1,532 per resident). However, the greatest proportion of BH care expenditures was spent on psychiatric medication and BH inpatient care. In fact, less than 1% of total BH care expenditures was used to provide outpatient psychiatric services to NH residents.

Tables 4f and 4g present data on Medicaid expenditures for younger residents with and without an SMI diagnosis. Expenditures for non-BH services far exceed what is spent on BH services for both groups. Not surprisingly, it costs more to provide all categories of service for persons with SMI. However, the data also shows that except for basic nursing home expenditures, non-behavioral health services for persons with SMI are higher for every category of service. This includes non-BH pharmacy, emergency room, outpatient and inpatient care. We were surprised by this finding, and believe it requires further research.

**Table 4e. Medicaid expenditures for younger residents (all subjects, N = 10,808)**

Services	PRPM Expenditures (mean [SD])	PRPM Events* (mean [SD])	Average Monthly Penetration Rate	Annualized Expenditures Per Resident
Behavioral health inpatient	16.58 (371.78)	0.02 (0.5)	0.5%	201.74
Non-behavioral health inpatient	216.29 (1572.08)	0.34 (2.3)	5.2%	2,633.33
<b>Total Hospital Expenditures</b>	232.86 (1616.22)	0.36 (2.4)	5.6%	2,835.07
Behavioral health emergency	0.20 (10.70)	.001 (0.06)	0.1%	2.44
Non-behavioral health emergency	8.30 (78.35)	0.08 (0.9)	2.7%	101.05
<b>Total Emergency Expenditures</b>	8.50 (79.43)	0.08 (0.9)	2.8%	103.49
Behavioral health outpatient	0.28 (6.17)	0.008 (0.18)	0.3%	3.41
Non-behavioral health outpatient	4.16 (32.54)	0.11 (0.8)	3.7%	50.65
<b>Total Outpatient Expenditures</b>	4.44 (33.19)	0.12 (0.8)	4.0%	54.06
Behavioral health pharmacy	108.81 (169.29)	1.3 (1.6)	65.6%	1,324.76
Non-behavioral health pharmacy	397.39 (486.05)	7.3 (6.2)	92.5%	4,838.22
<b>Total Pharmacy Expenditures</b>	506.20 (524.01)	8.6 (6.8)	94.0%	6,162.99
<b>Total Behavioral Health (non-Nursing Home) Expenditures</b>	125.87 (418.63)	--	65.7%	1,532.47
<b>Total non-Behavioral Health (non-Nursing Home) Expenditures</b>	626.14 (1713.89)	--	92.8%	7,623.25
<b>Total Nursing Home Expenditures</b>	4156.75 (1298.64)	29.9 (0.8)	100%	50,608.43
<b>Total Medicaid Expenditures</b>	4908.76 (2217.44)	--	100%	59,764.15

\* Events for inpatient and emergency services are admissions, events for outpatient services are visits, and events for pharmacy services are prescription refills.

**Table 4f. Medicaid expenditures for younger residents with SMI (N = 4,850)**

Services	PRPM Expenditures (mean (SD))	PRPM Events* (mean (SD))	Average Monthly Penetration Rate	Annualized Expenditures per Resident
Behavioral health inpatient	32.56 (529.44)	0.04 (0.7)	0.9%	396.42
Non-behavioral health inpatient	230.75 (1580.68)	0.38 (2.5)	5.5%	2,809.38
<b>Total Hospital Expenditures</b>	263.31 (1667.99)	0.42 (2.6)	6.4%	3,205.80
Behavioral health emergency	0.37 (14.54)	.002 (.09)	0.1%	4.50
Non-behavioral health emergency	10.26 (98.69)	0.09 (0.8)	3.2%	124.92
<b>Total Emergency Expenditures</b>	10.63 (90.46)	0.09 (0.8)	3.3%	129.42
Behavioral health outpatient	0.53 (8.59)	0.02 (0.2)	0.6%	6.45
Non-behavioral health outpatient	4.37 (29.61)	0.12 (0.8)	4.0%	53.20
<b>Total Outpatient Expenditures</b>	4.90 (30.96)	0.14 (0.9)	4.6%	59.66
Behavioral health pharmacy	163.75 (202.95)	1.8 (1.7)	82.1%	1,993.66
Non-behavioral health pharmacy	417.08 (479.44)	7.6 (6.4)	93.3%	5,077.95
<b>Total Pharmacy Expenditures</b>	580.82 (529.79)	9.4 (7.0)	95.1%	7,071.48
<b>Total Behavioral Health (non-Nursing Home) Expenditures</b>	197.21 (579.27)	--	82.2%	2,401.03
<b>Total non-Behavioral Health (non-Nursing Home) Expenditures</b>	662.46 (1718.19)	--	93.6%	8,065.45
<b>Total Nursing Home Expenditures</b>	4062.34 (981.95)	29.9 (0.9)	100%	49,458.99
<b>Total Medicaid Expenditures</b>	4922.00 (2050.76)	--	100%	59,925.47

\* Events for inpatient and emergency services are admissions, events for outpatient services are visits, and events for pharmacy services are prescription refills.

**Table 4g. Medicaid expenditures for younger residents without SMI (N = 5,958)**

Services	PRPM Expenditures (mean (SD))	PRPM Events* (mean (SD))	Average Monthly Penetration Rate	Annualized Expenditures per Resident
Behavioral health inpatient	2.59 (116.17)	0.005 (0.2)	0.1%	31.53
Non-behavioral health inpatient	203.64 (1564.42)	0.3 (2.1)	4.8%	2,479.32
<b>Total Hospital Expenditures</b>	206.23 (1569.05)	0.3 (2.1)	5.0%	2,510.85
Behavioral health emergency	0.06 (5.42)	.0003 (0.02)	0.03%	0.73
Non-behavioral health emergency	6.58 (67.99)	0.07 (0.98)	2.3%	80.11
<b>Total Emergency Expenditures</b>	6.64 (68.28)	0.08 (0.99)	2.3%	80.84
Behavioral health outpatient	0.06 (2.58)	0.002 (0.08)	0.1%	0.73
Non-behavioral health outpatient	3.97 (34.90)	0.10 (0.73)	3.4%	48.33
<b>Total Outpatient Expenditures</b>	4.03 (35.01)	0.11 (0.73)	3.5%	49.06
Behavioral health pharmacy	60.75 (112.90)	0.9 (1.3)	51.2%	739.63
Non-behavioral health pharmacy	380.17 (491.12)	7.0 (6.1)	91.8%	4,628.57
<b>Total Pharmacy Costs</b>	440.92 (510.02)	7.9 (6.5)	93.1%	5,368.20
<b>Total Behavioral Health (non-Nursing Home) Expenditures</b>	63.46 (163.28)	--	51.3%	772.63
<b>Total non-Behavioral Health (non-Nursing Home) Expenditures</b>	594.36 (1709.49)	--	92.1%	7,236.33
<b>Total Nursing Home Expenditures</b>	4239.35 (1517.80)	30.0 (0.8)	100%	51,614.09
<b>Total Medicaid Expenditures</b>	4897.17 (2353.56)	--	100%	59,623.05

\* Events for inpatient and emergency services are admissions, events for outpatient services are visits, and events for pharmacy services are

### Question 5: What are the relevant predictors of BA examinations and BH hospitalizations?

Table 5a shows the results of the multivariate logistic regression model that illustrates the odds of at least one BA examination in relation to individual and facility characteristics of the entire sample. Since the model includes relevant variables, these findings have been adjusted for all individual and facility characteristics. They show that BA examinations were slightly more common among Whites, and much higher (87%) for NH residents with a prior state hospital stay. Significantly increased odds were found among residents diagnosed with dementia and SMI. The strongest effect (about a 17-fold increase) in the odds of a BA examination occurred when a major psychotic disorder was present. Although not statistically significant, co-morbidity as measured by the Charlson Index score also increased the likelihood of an examination. Residents in smaller facilities (below 120 beds) had slightly higher odds of having a BA exam, but this was the only characteristic found to be statistically significant.

Table 5b shows the adjusted odds of having at least one BH hospitalization through applying the multivariate logistic regression model. Among individual level characteristics, Whites were more likely to undergo a BH hospitalization than minority residents, as were residents with a prior state hospital stay. A corresponding similarity was found between the increased chance of a BH hospitalization and a BA examination (Table 5a) among residents with dementia and SMI. Meanwhile, the BH hospitalization risk was 88% higher for persons who were previously in a state hospital. A 34-fold increase was found among persons with a major psychotic disorder. A co-morbidity score of 1 or more as measured by the Charlson Index increased the odds of a BH hospitalization by about 53%. BH hospitalizations were more than three times as likely in facilities with a higher than average proportion of residents with SMI. No other facility characteristics were statistically significant ( $p=0.001$ ).

Predictors of a non-BH Hospitalization are presented in Table 5c. Many of the variables in our model increased the odds of a non-BH hospitalization among older residents, whites, and those with an SMI diagnosis. Other risk factors included dementia, a prior state hospital stay, and SSI enrollment.

**Table 5a. Predictors of Baker Act examinations for younger residents**

Predictors of Baker Act Exam	Values	Estimate	Standard Error	Odds Ratio	P-Value
Age at study entry	0– 64	-0.006	0.006	0.99	0.327
Sex (Female = 1)	0 , 1	-0.15	0.11	0.86	0.177
Minority status (Non-White = 1)	0 , 1	-0.32	0.12	0.73	0.008
Major psychotic disorder	0 , 1	2.85	0.19	17.35	<.0001
Bipolar disorder	0 , 1	1.97	0.31	7.20	<.0001
Major depressive disorder	0 , 1	1.04	0.24	2.84	<.0001
Substance abuse disorder	0 , 1	-0.23	0.15	0.80	0.126
Dementia	0 , 1	0.63	0.12	1.88	<.0001
Charlson Index ( $\geq 1$ )	0 , 1	0.16	0.15	1.17	0.273
Ownership type (for profit = 1)	0 , 1	-0.12	0.13	0.88	0.348
Chain owned (yes = 1)	0 , 1	0.05	0.12	1.05	0.696
Size (below 120 = 1)	0 , 1	0.29	0.12	1.34	0.019
Occupancy (below 95% = 1)	0 , 1	-0.04	0.13	0.96	0.760
Medicaid census ratio	0 - 1.0	0.58	0.43	1.78	0.177
Number of quality citations	0 - 33	0.01	0.01	1.01	0.293
Proportion of persons with SMI	0 - .87	0.35	0.36	1.42	0.329
Prior state hospital stay (yes = 1)	0 , 1	0.63	0.19	1.87	0.001
SSI (yes = 1)	0 , 1	-0.33	0.12	0.72	0.005

**Table 5b. Predictors of behavioral health hospitalizations for younger residents**

<b>Predictors of behavioral health hospitalizations</b>	<b>Values</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>Odds Ratio</b>	<b>P-Value</b>
Age at study entry	0– 64	-0.004	0.006	1.00	0.463
Sex (Female = 1)	0 , 1	-0.01	0.10	0.99	0.921
Minority status (Non-White = 1)	0 , 1	-0.23	0.11	0.79	0.033
Major psychotic disorder	0 , 1	3.54	0.25	34.39	<.0001
Bipolar disorder	0 , 1	2.52	0.35	12.44	<.0001
Major depressive disorder	0 , 1	1.86	0.28	6.42	<.0001
Substance abuse disorder	0 , 1	0.11	0.13	1.12	0.386
Dementia	0 , 1	0.41	0.11	1.51	<.0001
Charlson Index ( $\geq 1$ )	0 , 1	0.42	0.15	1.53	0.005
Ownership type (for profit = 1)	0 , 1	-0.19	0.12	0.83	0.126
Chain owned (yes = 1)	0 , 1	-0.12	0.11	0.89	0.268
Size (below 120 = 1)	0 , 1	-0.02	0.12	0.98	0.877
Occupancy (below 95% = 1)	0 , 1	-0.007	0.13	0.99	0.959
Medicaid census ratio	0 - 1.0	0.68	0.46	1.97	0.143
Number of quality citations	0 – 33	0.001	0.01	1.00	0.921
Proportion of persons with SMI	0 - .87	1.38	0.34	3.99	<.0001
Prior state hospital stay (yes = 1)	0 , 1	0.63	0.18	1.88	0.001
SSI (yes = 1)	0 , 1	0.36	0.11	1.44	0.001

**Table 5c. Predictors of non-behavioral health hospitalizations for younger residents**

<b>Predictors of non-behavioral health hospitalizations</b>	<b>Values</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>Odds Ratio</b>	<b>P-Value</b>
Age at study entry	0– 64	-0.01	0.002	0.99	<.0001
Sex (Female = 1)	0 , 1	-0.03	0.04	0.97	0.501
Minority status (Non-White = 1)	0 , 1	0.13	0.04	1.13	0.003
Major psychotic disorder	0 , 1	0.11	0.05	1.11	0.044
Bipolar disorder	0 , 1	0.33	0.12	1.39	0.004
Major depressive disorder	0 , 1	0.41	0.06	1.51	<.0001
Substance abuse disorder	0 , 1	-0.40	0.06	0.67	<.0001
Dementia	0 , 1	0.31	0.05	1.36	<.0001
Charlson Index ( $\geq 1$ )	0 , 1	0.82	0.05	2.26	<.0001
Ownership type (for profit = 1)	0 , 1	0.03	0.05	1.03	0.555
Chain owned (yes = 1)	0 , 1	-0.05	0.04	0.95	0.232
Size (below 120 = 1)	0 , 1	-0.08	0.05	0.92	0.109
Occupancy (below 95% = 1)	0 , 1	-0.15	0.05	0.86	0.002
Medicaid census ratio	0 - 1.0	0.80	0.16	2.22	<.0001
Number of quality citations	0 – 33	0.0006	0.004	1.00	0.868
Proportion of persons with SMI	0 - .87	0.23	0.15	1.25	0.134
Prior state hospital stay (yes = 1)	0 , 1	-0.45	0.14	0.64	0.001
SSI (yes = 1)	0 , 1	0.09	0.04	1.09	0.047

**Question 6: From the perspective of the staff, what precipitates a BA examination or BH hospitalization, and what impact do these events have on the resident and the NH?**

Semi-structured telephone interviews were conducted with a random sampling of approximately 2% of NH administrators and line nursing staff from facilities throughout Florida. After the percentage of residents with severe mental illness (SMI) was determined at each facility, an equal number was selected at random from those reporting 1) a high percentage of SMI residents, 2) an average percentage, and 3) a low percentage.

Eleven nursing homes from throughout the state of Florida participated in this qualitative study. These include facilities in Broward, Columbia, Escambia, Palm Beach, Pinellas, St. Johns, Sarasota, and Volusia counties. The interviews focused on how staff members perceive the impact of facility services on the overall quality of life among younger nursing home residents. The interview protocol was developed as a guide for focused discussions. Specifically, respondents were asked to provide their perspectives on BA examinations, psychiatric hospitalizations, and mental health treatment. They also outlined resources that could improve their response to the needs of young adults with SMI.

In addition to differing by the percentage of residents with SMI, the nursing homes also vary in the available resources and support systems that can be provided to their residents. Resources might differ for nursing homes that are privately owned, for-profit, private not-for-profit, or government-owned facilities. Facilities may be either stand-alone nursing homes or part of a larger retirement community. Nursing home amenities may include a waterfront residence, music and art classes, activities such as water aerobics, and alternative therapies and treatments. However, most participating homes in this study indicated having comparatively limited resources and program activities.

Two of the eleven facilities reported having sufficient support and involvement of friends and family members. They believed that this made a significant difference in their ability to respond to the needs of residents with SMI.

Interviews were conducted with either the NH administrator or with the Director of Nursing, and depended on several variables. In a few instances, the Administrator was not available to participate in the interview and referred the interviewer to the Director of Nursing. In one instance, the Administrator felt unable to answer the questions asked and referred the interviewer to the Director of Nursing instead. One telephone interview was conducted with both the Administrator and a Nurse Administrator, which allowed for a more thorough interpretation of the issues. There was only one instance in which the Director of Nursing felt unable to respond to the

questions posed, and the interviewer was referred to the Administrator. The nursing directors were very familiar with the issues that face the line staff and were able to address these issues in detail.

#### *Description of Nursing Home Resident Population*

The first question asked respondents to describe the current resident population within the nursing home. They were then asked whether the population of young adults (those under 65 years of age) with SMI was prevalent.

In response to the first question, 64% (n=7) of the nursing homes described the resident population as being primarily comprised of older adults, most of whom also have moderate to severe co-morbidities. Another facility commented that approximately 95% of their sixty beds are full most of the time. Residents were described as having various types and amounts of support, including family, friends and financial resources.

As far as the second question is concerned, 18% of respondents (n=2) described their resident population as being of various ages and cultural backgrounds. The health issues of these residents were described as moderate to severe, and many of the residents are severely mentally ill. Another 18% (n=2) described their residents as a mix of both younger and older adults, with the presence of adults under age 65 as prevalent in the nursing home. One facility said it had adults under 45 years of age in the past but does not at the present time.

#### *Prevalence of Young Adults with SMI*

When asked how prevalent young adults under the age of 65 with SMI either are and have been in recent years, the responses fell into two primary categories. A total of 55% (n=6) indicated that the population of younger adults with SMI was not prevalent in their facility at the time of the study. Among those nursing homes, half responded that they have had a small population of younger adults with SMI in the past. However, each respondent felt the overall population of SMI patients was prevalent at their facility.

The remaining 45% (n=5) stated that they did have a population of young adults with SMI at the time of the study. Additionally, all of these nursing homes felt that the prevalence of young adults with SMI has increased in recent years, as has the number of younger adults who have come to their nursing homes.

### *Needs of Residents with SMI*

The third question invited nursing home respondents to identify the needs for adults with SMI, and asked whether those needs vary for younger adults with SMI.

All respondents indicated that special programs are important for adults with SMI, though the types of programs varied. More than half (55%, n=6) felt that programs beyond traditional “day care” were needed to further support treatment and provide additional socialization. Another 36% indicated that the needs of younger adults with SMI were specific enough that they warrant the establishment of separate activities for those adults. However, one commented that the number of younger adults with SMI was too few to make creating programs for this population a priority.

Almost every respondent (91%, n=10) indicated that nursing homes need additional resources to ensure greater staff flexibility. This would enable new programs to be created and result in a higher degree of social participation with residents.

However, one nursing home (9%, n=1) commented that the most valuable resource for socialization and rehabilitation for anyone with SMI was the support of family and friends, and noted that resources to encourage family involvement would be valuable. Additionally, only one nursing home indicated that it had sufficient resources to provide the programs they felt were needed by adults of any age with SMI. It offers programs that include water activities, pet therapy, and music classes.

This facility also indicated that family and friends of their residents resided locally and were actively involved with the nursing home resident.

### *Treatable Behaviors and Circumstances for Baker Act Referral*

Question four asked respondents to describe the circumstances or characteristics of a resident who was most likely to receive an involuntary psychiatric examination or hospitalization (i.e. “Baker Act”). Question five asked them to describe the behaviors they are able to treat and which require a referral.

There was some variation in the extent to which the nursing home staff felt equipped and prepared to work with residents. All respondents indicated that they are prepared to support residents who have dementia, mild Alzheimer’s disease, depression and other conditions that are responsive to treatment therapies.

All respondents also indicated, with only minor variation, that a resident who was considered a danger to himself, to other residents, or to the staff

would be referred for psychiatric examination. A total of 36% (n=4) of nursing homes reported having to frequently refer a resident for a psychiatric exam because of excessive physically or verbally abusive behaviors. The majority (55%, n=6) stated that they rarely refer patients, while just one nursing home (9%) reported never having to refer a patient.

### *Impact on Nursing Staff*

Survey participants were asked in Question seven to describe the impact that working with adults with SMI has had on the staff.

All respondents (n=9) indicated that their staff was challenged by the impact of working with adults with SMI who exhibit aggressive behaviors. One commented that residents with SMI are more difficult to work with because mental illness is less easily treated than physical morbidities. The sense of teamwork and skills of the employees were identified as key factors in treating residents. Staff comments at one nursing home noted that the professional commitment of employees is the most reliable resource, particularly at times when funding is lean and they must work long hours.

### *Resources for Nursing Homes*

Question six asked survey participants to describe what, if any, resources would assist them in treating residents with SMI before they reached a critical state that required a Baker Act exam or hospitalization. Many nursing homes provided multiple answers: t:

- 55% (n=6) indicated the need for additional staff training. While it was noted that nurses, administrators and other staff are already overwhelmed by their responsibilities in caring for residents, respondents felt that line staff could benefit from additional training.
- 55% (n=4) responded by calling for more resources to hire additional staff.
- 27% (n=3) believed their residents would benefit from the availability of additional programs and activities specific to certain resident groups, such as adults with SMI.

Two respondents (18%), however, appeared to be in a situation that differed from their counterparts. In fact, they indicated that they have adequate resources to meet the needs of their residents. One acknowledged that the resources available to its residents made its situation unusual for a nursing home. Both said that having an abundance of financial resources allowed them to make a variety of activities available to all residents, including those with SMI. They added that many residents enjoy the social support of friends and relatives, which further enhances the ability to provide these activities.

### *Conclusion for Qualitative Study*

The majority of nursing homes participating in this study either have current or past experience in caring for residents with SMI who were under the age of 65. While having access to therapies and psychiatric assistance for residents, they still encountered situations that required a referral for involuntary psychiatric examination or hospitalization under the Baker Act.

Respondents also suggested that providing additional training to current staff on how to assist residents with SMI may reduce the number of residents referred for Baker Act treatment, as would the ability to hire additional staff. Additionally, the various resident demographics in nursing homes can be better served by establishing programs that address their specialized needs. These include younger and older adults, as well as residents with or without SMI.

Overall, the burden for care and support of all residents is on nursing home administrators and the nursing line staff. While they feel beleaguered by their situation, it seems that very little can be done under current circumstances to alleviate the emotional and physical duress that seems to be endemic within the nursing home environment.

### **Discussion**

Results show that although a considerable amount of money was spent on the provision of behavioral health (BH) services to the younger residents in this study, most (88%) of the BH expenditure went for BH medication and BH inpatient care. Few residents received non-pharmacological BH services prior to their BA examination or BH hospitalization. Study findings indicate that facility characteristics and resident characteristics both contribute to the rate of BA examinations and BH hospitalizations. A surprising finding is that almost all (95%) of facilities studied did not meet CMS RN staffing standards. This is particularly unfortunate because in facilities with inadequate staffing, psychiatric symptoms in residents with mental illness are more likely to be exacerbated, and less likely to be well managed. Improving RN staffing would likely decrease the frequency of these events.

Considering the demographic and diagnostic characteristics of residents that experience the most BA examinations and BH hospitalizations, we suggest that better understanding of the behavioral health needs of younger adults would help staff identify when these treatments could be prevented, thus reducing their frequency. To our knowledge this is the first study to identify NH residents with a prior state hospital stay. Although this population is small ( $n = 261$ ), these residents warrant further study to augment the scant information available about their characteristics and their increased risk for both BA examination and BH hospitalization.

## Study Limitations

This study relied solely on administrative data from one state, which may restrict how its findings are applied in other locales. Limitations include imperfect record keeping, coding errors within the data, and incomplete data. However, this administrative data provides detailed information on Medicaid enrollees, NH facility characteristics, and BA examinations that would otherwise not be available. By using this data, the possibility of attrition due to lost contact over time was avoided. In addition, the fact that the data was already in place minimized the costs associated with using it. The study only reports on Medicaid expenditures because we do not have access to Medicare data or data on out of pocket costs. This means that the actual expenditures incurred by the study population were necessarily underestimated.

## Conclusions and Policy Implications

This study shows that except for medication, very few behavioral health assessment, consultation, or intervention services were provided to NH residents within their facilities. This fact is consistent with the findings from our structured interviews with NH administrators and line staff, who indicated that the mental health needs of residents with SMI would be met more effectively through hiring additional staff and implementing targeted BH programs. Theoretically, providing needed BH services to residents within their NH could improve resident outcomes and reduce the frequency of BA examinations and BH hospitalizations. Adding specialized BH services and programs for residents within their nursing home can potentially reduce costs associated with both physical and mental health care.

Our findings also enhance the body of knowledge about risk factors for psychiatric hospitalization and BA examinations among younger NH residents. Study data provides new information about the pattern of treatments provided to these residents before and after BA examinations and psychiatric hospitalizations. Its results could influence the development of effective policies and clinical practices to reduce NH discharges for psychiatric care. If there were fewer psychiatric hospitalizations and BA examinations, the incidence of unnecessary trauma from relocation could also be reduced. Such an outcome would likely improve the quality of life for younger NH residents with mental illness, while also reducing Medicaid costs associated with their care.

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## Appendix A

### **FMHI's Study of Young Adults in Nursing Homes Interview Protocol for Qualitative Study – Line and Administrative Staff**

**Please answer the following questions from your professional and personal perspectives.**

- 1.) Can you describe the population in this nursing home?
- 2.) How prevalent is your population of adults under the age of 65 with serious mental illness (SMI)? Has the number of younger adults changed in recent years (has it increased, decreased, or remained about the same)? Has the number of adults with SMI changed recently?
- 3.) What are the needs of adults with SMI? Are there differences in the needs of younger adults compared with older adults?
- 4.) Can you describe the circumstances or characteristics of a resident who is most likely to receive an involuntary psychiatric exam or hospitalization (“Baker Act”)?
- 5.) What kinds of behavioral problems do you feel you can treat? At what point does it become “too much” to handle? A left margin problem on this line, but I could not fix it
- 6.) What resources do you think could be availed to nursing staff that might help to treat a resident with mental illness before he or she needs to be “Baker Acted”?
- 7.) What impact, if any, do you think working with adults with serious mental illness has on the staff? Do you know whether agencies such as Medicaid, Medicare, and AHCA are aware of the impact that adults with SMI have on nursing homes?
- 8.) Is there anything additional you would like to add that we have not discussed already? Answers to this question were not specifically noted. Should they be?

