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J Aging Soc Policy. Author manuscript; available in PMC 2013 November 03.

Published in final edited form as:
J Aging Soc Policy. 2011 ; 23(3): . doi:10.1080/08959420.2011.579511.

Nursing Home Admissions and Long-Stay Conversions Among Persons With and Without Serious Mental Illness

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Abstract

The appropriateness of nursing homes for individuals with serious mental illness remains a controversial issue in long-term care policy more than a decade since the landmark U.S. Supreme Court Olmstead decision in 1999, which affirmed the rights of persons with disabilities to live in their communities. Using national nursing home Minimum Data Set assessments from 2005, the authors compared the demographic, clinical, and functional characteristics of persons with and without serious mental illness newly admitted to nursing homes. They found that newly admitted people with serious mental illness were younger and more likely to become long-stay residents than those admitted with other conditions despite a higher proportion of residents with serious mental illness, including the elderly, classified as low-care status. The most substantial and clinically significant difference for rates of low-care status 90 days after initial admission are for persons younger than 65 with serious mental illness versus those younger than 65 without serious mental illness (33% vs. 8.5%, or 3.9 times greater). There is a notable difference in low-care status between persons aged 65 and older with serious mental illness and those aged 65 and older without serious mental illness (14% vs. 6.6%, or 2.1 times greater). These results suggest that a substantial number of adults with serious mental illness residing in nursing homes may have the functional capacity to live in less restrictive environments.

Keywords

nursing homes; Olmstead decision; PASRR; serious mental illness

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INTRODUCTION

More than 500,000 people with a mental illness (excluding dementia) are estimated to reside in U.S. nursing homes, greatly exceeding the number in all other health care institutions combined (Frank & Glied, 2006). Ongoing debate persists over whether nursing homes are the most appropriate long-term care setting for individuals with serious mental illnesses such as bipolar disorder and schizophrenia. During the first half of the 20th century, state psychiatric hospitals were the primary locus of care and treatment for people with mental illnesses in need of long-term care or support (Fisher, Geller, & Pandiani, 2009). However, federal deinstitutionalization policies of the 1960s and 1970s, which favored the least restrictive setting for the treatment of mental illness, led to the accelerated downsizing and closure of state psychiatric hospitals. The number of elderly persons in psychiatric hospitals decreased by about 40% during that period, while the number of persons with mental illness in nursing homes increased by more than 100% (Institute of Medicine, 1986). When levels of funding failed to attain the necessary investment in services to support persons with serious mental illness in community-based settings, many of these individuals were forced to turn to nursing homes as an alternative source of long-term care. In many instances, one institution (psychiatric hospitals) was substituted for another (nursing homes), a phenomenon that persists a half-century later (Bartels, Brewer, Mays, & Rawlings, 2005).

Although many individuals with mental illness admitted to nursing homes are elderly, this trend has also occurred among middle-aged individuals (Fullerton, McGuire, Feng, Mor, & Grabowski, 2009). Recent data indicate that Medicaid beneficiaries with schizophrenia between the ages of 40 and 64 are four times more likely to be admitted to nursing homes compared to Medicaid beneficiaries in the same age group without a mental illness (Andrews, Bartels, Xie, & Peacock, 2009). Indeed, a high percentage (54%) of new nursing home admissions among persons with serious mental illness occur among non-elderly people (aged 18 to 64) (Grabowski, Aschbrenner, Feng, & Mor, 2009). This finding is alarming given that few nursing home facilities are equipped to provide evidence-based psychiatric and rehabilitative programs to meet the needs of persons with serious mental illness (Bartels, Moak, & Drums, 2002). Indeed, a recent review of the literature suggests that the quality of mental health care in nursing homes is often substandard (Grabowski, Aschbrenner, Rome, & Bartels, 2010).

Prevalence of Mental Illness in Nursing Homes

A high proportion of nursing home residents have a significant mental illness, with estimates ranging from 65% to 91% (Burns, Taube, Fogel, Furino, & Gottlieb, 1990; Smyer, Shea, & Streit, 1994; Tariot, Podgorski, Blazin, & Leibovici, 1993). The number of persons with mental illness reported to be residing in nursing facilities varies according to the types of data used and according to whether dementia is included as one of the mental health diagnoses. Dementia, as well as its behavioral and psychiatric symptoms, has long been the most prevalent mental disorder in nursing homes (Beck et al., 1998; Kamble, Chen, Sherer, & Aparasu, 2008; Krauss & Altman, 1998; Magaziner et al., 2000; Magaziner, Zimmerman, Fox, & Burns, 1998). However, over the past decade, the proportion of new nursing home admissions with mental illness other than dementia, including major depression and serious mental illness such as schizophrenia and other psychotic disorders, has overtaken the proportion with dementia only. Of the 996,311 persons newly admitted to U.S. nursing homes in 2005, 19% (n = 187,478) were admitted with mental illnesses other than dementia, whereas 12% (n = 118,290) had dementia only (Fullerton et al., 2009).

Estimates based on the 1995 National Nursing Home Survey indicated that 7.1% of nursing home residents had schizophrenia and related disorders, while the Medical Expenditure Survey for 1996 suggested that 5.9% had diagnoses of these disorders (Mechanic &

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McAlpine, 2000). Using national nursing home Minimum Data Set (MDS) assessments from 2005, Grabowski et al. (2009) found that 2.7% of new admissions nationally indicated a schizophrenia or bipolar diagnosis. Furthermore, cross-state variation was observed, with rates of schizophrenia or bipolar diagnosis among new nursing home admissions ranging from 1.2% (Wyoming) to 3.4% (Missouri).

The Placement of Adults With Serious Mental Illness in Nursing Homes

Compared to older adults with serious mental illness residing in the community, those who live in nursing homes are more likely to have severe psychiatric symptoms, greater cognitive deficits, more functional and physical impairment, more aggressive behaviors, and a lack of social supports (Bartels, Mueser, & Miles, 1997). However, nursing homes rarely have the capacity or expertise to provide appropriate treatment and rehabilitative services for persons with serious mental illness. One study suggested that half of nursing homes did not have access to adequate psychiatric consultation and three-quarters were unable to obtain consultation and educational services for behavioral problems (Reichman et al., 1998). Furthermore, a substantial number of nursing home residents with serious mental illness are more appropriate for community residence. For instance, among non–cognitively impaired nursing home residents with serious mental illness, 40% and 51% are considered by consumers and their clinicians, respectively, to be more appropriate for community-based settings (Bartels, Miles, Dums, & Levine, 2003). However, a lack of safe, affordable residential options and community supports remains a major impediment to community residence for persons with serious mental illness (O'Hara, 2007).

Federal Laws and Policies Designed to Address Inappropriate Nursing Home Placement

Nursing home reform measures enacted by the federal government more than 20 years ago aimed to prevent the use of nursing homes as alternatives to state psychiatric hospitals. Under the Omnibus Budget Reconciliation Act (OBRA) of 1987, the Preadmission Screening and Resident Review program (PASRR) required that states develop and implement a process for screening for serious mental illness among applicants to Medicaid-certified nursing homes. Under these guidelines, nursing facilities are prohibited from admitting any individual with serious mental illness unless the state mental health authority determines that nursing home–level care is appropriate for that individual (Linkins, Lucca, Housman, & Smith, 2006). PASRR regulations mandate that alternative care settings should be found for mentally ill individuals who fail to meet the full criteria for skilled nursing care.

However, PASRR has had a limited impact on preventing nursing home admission among persons with primary psychiatric disorders (Bazelon Center for Mental Health Law, 1996), and the legislation generally has failed to improve the capacity of nursing facilities to deliver mental health services (Linkins et al., 2006; Shea, Russo, & Smyer, 2000). For example, according to a report by the Office of the Inspector General (2001), fewer than half of nursing home residents with a serious mental illness receive appropriate preadmission screening. The limited impact of PASRR has been attributed to a lack of community-based alternatives and poor access to appropriate community mental health services for persons with serious mental illness (Banazak & Glettler, 2000; Smyer, 1989).

In addition to federal legislation under PASRR, subsequent reforms aimed to reduce the use of nursing homes as primary settings of long-term psychiatric care for persons with serious mental illness. In the summer of 1999, the United States Supreme Court ruled that under the Americans with Disabilities Act it is discriminatory to institutionalize a person with disabilities who wishes to live in the community and is capable of benefiting from such a setting (*LC v. Olmstead*). Known as the Olmstead decision, this case established that unnecessary and undesired institutionalization constitutes discrimination of persons with

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disabilities because it severely diminishes the individual's ability to interact with family and friends, to work, and to build a meaningful life for himself or herself.

The impact of Olmstead has varied from state to state. In 2003, the National Conference of State Legislatures reported that 29 states had issued Olmstead plans or reports, four states were working on plans, several other states had Olmstead task forces but did not intend to develop a plan or report, and 10 states were developing follow-up or progress reports (Fox-Grage, Folkemer, & Lewis, 2003). In a more recent multi-state investigation, Zubritsky, Mullahy, Allen, and Alfano (2006) found that both consumers and stakeholders reported positive outcomes for the Olmstead efforts in their states, including increased community-based services and resources, access to affordable housing, integration into community settings, and employment and educational opportunities. However, for many states, the ability to fully implement their plans has been curtailed by reductions in funding. The lack of residential alternatives and funding for appropriate services are major barriers to community integration for adults with serious mental illness (O'Hara, 2007).

The general consensus among mental health advocates and policy makers is that deinstitutionalization policy has failed to meet the overarching goal of supporting individuals with mental illness in the least restrictive setting providing access to needed specialized mental health services (American Geriatrics Society & American Association for Geriatric Psychiatry, 2003). To address this gap between policy and practice, it is necessary to describe accurately the characteristics and needs of persons with serious mental illness entering the nursing homes. Remarkably, little is known about the clinical and functional needs of persons admitted to nursing homes who have serious mental illness compared to adults entering nursing homes without major psychiatric disorders. This report aims to fill that gap. We use national nursing home MDS assessments from 2005 to compare the demographic, clinical, and functional characteristics of persons with and without serious mental illness newly admitted to nursing homes. We regard this as a first step in directing research and policy attention to a vulnerable population at risk for inappropriate placement in institutionalized settings.

DATA AND METHODS

Data and Study Population

We used the Centers for Medicare and Medicaid Services national registry of nursing home resident assessments from the MDS to compare the demographic, clinical, and functional characteristics of newly admitted nursing home residents aged 18 and older with and without serious mental illness. The MDS is the congressionally mandated assessment conducted for all residents of Medicare-/Medicaid-certified nursing facilities upon admission and at least quarterly thereafter (Morris et al., 1990). New admissions were defined as those residents with admission assessments during calendar year 2005 for whom no MDS record as far back as January 1, 1999, existed in the registry, implying a person's first admission to a nursing home. A total of 1,094,560 residents aged 18 and older were newly admitted during 2005. To identify long-stay status (90 days or more in the facility), we tracked these residents until June 30, 2006.

Definition of Serious Mental Illness

For all newly admitted nursing home residents in 2005, we defined *serious mental illness* based on the diagnosis fields in the MDS assessment at the time of admission. We classified nursing home residents as meeting criteria for having a serious mental illness if they had one of two psychiatric diagnoses entered in the MDS diagnosis field: schizophrenia or bipolar disorder. For our definition of serious mental illness, we focused on schizophrenia and

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bipolar disorder because these two psychiatric disorders are considered the most disabling and, consequently, are most frequently associated with institutionalization among people with mental illness. These fields are entered by an MDS assessment nurse using the patient's medical record. We recognize that the MDS falls short of clinical measures of mental illness (such as those found in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* [DSM-IV]) and presents a limitation of the results of this analysis (American Psychiatric Association, 2000).

Definition of Demographic, Clinical, and Functional Characteristics

The demographic, clinical, and functional characteristics of nursing home residents were obtained from MDS admission assessments. Demographic information included sex, age, race, and prior living arrangements. Clinical characteristics assessed included stroke, dementia (if the resident had a diagnosis of either dementia or Alzheimer's disease), Parkinson's disease, congestive heart failure, chronic obstructive pulmonary disease, arteriosclerotic heart disease, diabetes, obesity (body mass index > 30 kg/m^2), severe cognitive impairment (Cognitive Performance Scale score 4), wandering in the past 7 days, and prior history of psychiatric illness (i.e., prior history of psychiatric illness and/or prior stay at mental/psychiatric settings). In addition, resident use of antipsychotic, anti-anxiety, and antidepressant medication was evaluated.

Functional characteristics included dependence in transfer, activities of daily living (ADLs), and low-care status. We applied a broad definition of *low care*, based on a definition recently used by Mor et al. (2007) in a study of the prospects for transferring nursing home residents to the community. The broad definition of low-care status is met if a resident does not require physical assistance in any of the four late-loss ADLs—bed mobility, transferring, using the toilet, and eating—and is not classified in either the "Special Rehab" or "Clinically Complex" Resource Utilization Group (RUG-III). Except for the ADL scale, which was evaluated as a continuous variable, all other clinical and functional variables were evaluated as dichotomous variables.

Analytic Approach

Stratifying by serious mental illness status and age (younger than 65 vs. 65 and older), we compared the distribution of demographic, clinical, and functional status across four cohorts: (1) those younger than 65 with serious mental illness, (2) those older than 65 with serious mental illness, (3) those younger than 65 without serious mental illness, and (4) those older than 65 without serious mental illness. Mental health advocates and policy makers are also concerned about the transition of people with serious mental illnesses into "long-stay" nursing home residents. As such, we compared the likelihood of still being present in the nursing home at 90 days for the four cohorts. Statistical inference tests comparing the groups were not conducted since the data represent the population of interest, not a representative sample. Each variable and each subpopulation is offered with percentages (for categorical variables) and mean/*SD* (for continuous variables). Differences greater than 10% in absolute terms are considered clinically significant and noted in the results.

RESULTS

Table 1 presents information on demographic, clinical, and functional status of persons newly admitted to nursing homes in 2005, stratified by serious mental illness status and age (younger than 65 vs. 65 and older). In 2005, there were 1,094,560 new nursing home admissions in the entire United States. Of these, 2.5% had serious mental illness diagnoses, and 49.7% of those with serious mental illness were younger than 65. By comparison, only 10.3% of people admitted to nursing homes without serious mental illness were younger

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than 65. On average, people newly admitted with serious mental illness were younger than those admitted with other conditions.

Clinical Characteristics

People aged 65 and older with serious mental illness newly admitted to nursing homes had the highest rates of dementia. With respect to physical health conditions, both newly admitted people with serious mental illness and those without serious mental illness aged 65 and older had higher rates of congestive heart failure and arteriosclerotic heart disease than newly admitted people younger than 65. Diabetes rates were highest among adults younger than 65 without serious mental illness. However, obesity rates were highest among new admissions with serious mental illness younger than 65, with MDS assessments indicating that 40.9% of persons with serious mental illness in the younger cohort had a body mass index greater than 30 kg/m^2 upon entering the nursing home. All new admissions with serious mental illness had higher rates of prior psychiatric histories and psychiatric medication use than new admissions without serious mental illness. Adults younger than 65 with serious mental illness had the highest rates of psychiatric medication use across all types (i.e., antipsychotics, antidepressant, and anti-anxiety medications).

Functional Characteristics

In both age cohorts, newly admitted people with serious mental illness had lower rates of dependence in transfer and needed less assistance with ADLs. A higher proportion of people newly admitted to nursing homes with serious mental illness also met the criteria for low-care status, with nearly one-quarter (23.8%) of people with serious mental illness younger than 65 meeting the definition of low-care status upon admission.

Transitions to Long-Stay Status

Table 2 presents information on the proportion of people still in the facility at 90 days, stratified by serious mental illness status and age (younger than 65 vs. 65 and older). The percentage of people in each cohort who met the definition of low-care status at the 90-day follow-up is also presented. People with serious mental illness newly admitted to nursing homes were more likely than those without serious mental illness to remain in nursing homes at least 90 days after admission. Using all new admissions from 2005, 51.2% (n = 13,152) of surviving people with serious mental illness were still in the facility at 90 days. By comparison, only 34.5% (n = 311,891) of those without an serious mental illness diagnosis at admission still resided in the facility at 90 days. Of all new admissions aged 65 and older, 54.3% (n = 6,796) of those with serious mental illness were in the nursing home at the 90-day follow-up, whereas 34.6% (n = 276,870) of those without serious mental illness remained in the nursing home at 90-day follow-up. Similarly, 48.2% (n = 6,356) of those with serious mental illness younger than 65 were in the nursing home at the 90-day follow-up, whereas 34.1% (n = 35,021) of those without serious mental illness younger than 65 were still in the facility at 90 days. The most substantial and clinically significant difference for rates of low-care status 90 days after initial admission are for persons younger than 65 with serious mental illness versus those younger than 65 without serious mental illness (33% vs. 8.5%, or 3.9 times greater). There is a notable difference in low-care status between persons aged 65 and older with serious mental illness and those aged 65 and older without serious mental illness (14% vs. 6.6%, or 2.1 times greater).

DISCUSSION

Using data from 2005, we found that people with serious mental illness newly admitted to nursing homes were younger and more likely to become long-stay residents than those admitted with other conditions, despite a higher proportion of residents with serious mental

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illness classified as low-care status upon admission. These data suggest that the inappropriate placement of individuals with serious mental illness in nursing homes remains a pressing concern even with federal legislation designed to prevent the use of nursing homes as alternatives to state psychiatric hospitals. Further research is necessary to understand better the factors related to nursing home admissions among adults with serious mental illness who may have the functional capacity to live in a less restrictive environment. The placement of individuals with serious mental illness in nursing homes may relate to various nursing home and mental health factors.

Adherence to Regulatory Mandates

A potential explanation for the inappropriate placement of people with serious mental illness in nursing homes is a lack of adherence to regulatory and legal mandates, namely, PASRR and the Olmstead decision. The aim of these policies is to ensure the quality and appropriateness of nursing home care and to prevent unwarranted institutionalization of persons with mental illness who otherwise could live at home in community-based care (Bartels & Van Citters, 2005; Shea et al., 2000). Although these rulings are associated with an overall decline in nursing home admissions for persons with serious mental illness (Mechanic & McAlpine, 2000), state compliance with both PASRR and Olmstead has been problematic, potentially limiting the ability of these programs to prevent the premature and inappropriate placement of individuals with serious mental illness in nursing facilities (Linkins et al., 2006).

PASRR

Medicaid regulations require states to use PASRR to assess whether applicants to nursing facilities have serious mental illness and whether the nursing facilities are appropriate placements. PASRR involves two parts: preadmission Level I and Level II screens. The first-level screens are used to identify all applicants to Medicaid-certified nursing facilities who possibly have mental illness. If suspected of having serious mental illness, applicants then undergo a Level II evaluation of their physical and mental health status to verify whether they have serious mental illness. The evaluation involves a comprehensive assessment of the individual, including a functional appraisal of the person’s ADLs (e.g., self-monitoring of health status, hygiene, money management) and an assessment of the level of support for these activities that would be needed in an alternative community setting (Centers for Medicare and Medicaid Services, 2010). The Level II evaluations are conducted by an entity independent of the state mental health authority, which must then determine whether nursing facility services are appropriate and needed and whether specialized services are needed.

Although PASRR guidelines are national, room for discretion and interpretation in how the rules are implemented exists at the state level (Bazelon Center for Mental Health Law, 1996). PASRR systems function with little oversight from state and federal authorities. State Medicaid agencies and the Centers for Medicare and Medicaid Services share responsibility for enforcing PASRR requirements; however, it is unclear which entity is ultimately accountable for monitoring PASRR. State-level monitoring of PASRR evaluations has been called into question. In a national 50-state survey of PASRR agencies, Linkins et al. (2006) found a lack of comprehensive state-level monitoring systems for PASRR. Only nine (20%) of the states surveyed routinely monitored Level I outcomes as part of an overall quality improvement system. Even fewer states (15%) monitored Level II outcomes (e.g., applicant has a serious mental illness, requires specialized mental health services, appropriate for nursing facility care). In addition, fewer than half of the states review individual Level I and Level II screens for accuracy and completeness of information (Linkins et al., 2006).

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Our data indicate that a comprehensive review of Level II PASRR screens could reveal numerous people who could receive treatment in alternative care settings. We found that while all new admissions with serious mental illness had higher rates of prior psychiatric histories and psychiatric medication use (i.e., antipsychotic, antidepressant, and anti-anxiety medications) than new admissions without serious mental illness, newly admitted people with serious mental illness had lower rates of dependence in transfer and needed less assistance with ADLs. Furthermore, a higher proportion of people newly admitted to nursing homes with serious mental illness also met the criteria for low-care status, with nearly one-quarter (23.8%) of people with serious mental illness younger than 65 classified as low-care upon admission. This is not to suggest that all people with mental illnesses are candidates for alternative care settings. People in nursing homes who have chronic psychiatric conditions have greater cognitive impairments and functional deficits, as well as more behavior problems, than community-dwelling people with the same psychiatric conditions (Bartels et al., 1997). However, there may be potential candidates for community placement that could be identified through more rigorous monitoring of the PASRR process.

Absence of State Psychiatric Hospitals

Another important factor in nursing home admissions among adults with serious mental illness is likely to be the failure of states to sustain and build out community-based services and alternatives to nursing homes while also downsizing state psychiatric hospitals. In 2006, 228 state hospitals operated some 49,000 beds (Fisher et al., 2009), with spending on these facilities approaching $7.7 billion—nearly one-third of state mental health agency budgets (Parks, Svendsen, Singer, & Foti, 2006). State hospitals typically serve “difficult-to-discharge” populations, including patients with complex medical conditions, criminal justice histories, and problematic behavior problems that would complicate community living and could present risks to themselves or others (Fisher et al., 2001; Manderscheid, Atay, & Crider, 2009). The service areas in which state psychiatric hospitals operate feature varying levels and types of community-based services. For example, residential programs can range from intensively staffed, highly restrictive group homes to independent housing programs that provide assistance with medication and supportive services from outreach workers and case managers. Although many systems also feature day treatment, supported employment, and clubhouse programs that support integration into the community for their clients, systems can vary widely in the levels and types of services they maintain (Garfield, 2009). One of the consequences of closing state hospitals without parallel efforts to build a strong local mental health care infrastructure is that people with mental illnesses in need of intensive support may turn to nursing homes in the absence of alternative facilities and resources.

Presence of Home- and Community-Based Services

The availability of community-based alternatives to nursing homes for persons with serious mental illness will likely relate to states’ overall efforts to “rebalance” their long-term care systems away from nursing homes and toward home and community-based services (HCBS). During the past 2 decades, investment by the states in HCBS programs, especially through Section 1915 (c) waivers, has expanded dramatically in response to greater public demand for more community-based care options, also reflecting an effort to reduce the increasing burden of nursing home costs on state budgets (Mor et al., 2007). The waiver of federal restrictions on how state Medicaid programs operate allows states more flexibility to offer a number of HCBS to individuals who otherwise would have qualified for Medicaid-funded institutional care. These programs include a combination of both traditional medical services (e.g., extended nursing services) as well as social and supportive services (e.g., respite and case management) (Wiener et al., 2004).

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A long-standing problem in Medicaid mental health policy has been the inability for states to provide HCBS to persons with mental illness because of a federal requirement that such services be offered only through a Medicaid waiver that is budget-neutral (i.e., that costs to the federal government do not exceed the costs of institutional services). It has been nearly impossible for states to secure HCBS waivers for adults aged 22 to 64 with mental illness because Medicaid does not cover services in an "institution for mental disease" for this population (Koyanagi, 2006; O'Connor, Little, & McManus, 2009). Without a significant federal Medicaid institutional expenditure to transfer to community care, states could not meet the waiver requirement for budget neutrality. However, the Deficit Reduction Act (DRA) of 2005 gives states the option to provide HCBS as a state plan service. Under the DRA, states can provide comprehensive HCBS and self-directed personal assistance services (cash and counseling) as part of their basic state plans, without having to go through the federal waiver approval process first (Crowley, 2006). Thus, states can target services to adults with serious mental illness who have traditionally not been serviced by Medicaid HCBS programs.

Success of the DRA initiative to "rebalance" long-term care between institutional and community-based care ultimately depends on how states and other stakeholders respond. Great variation is present among states, with estimates ranging from 5% or less to more than 50% of Medicaid long-term services and support funds for older people and adults with disabilities going toward HCBS (Kassner et al., 2008). Mor et al. (2007) recently studied the prospects for transferring nursing home residents classified as "low-care" to the community and found that states with lower investment in community alternatives had higher proportions of low-care nursing home residents. We classified nearly one-quarter (23.8%) of people with serious mental illness younger than 65 as low-care upon admission, and about one-third (32.9%) of those still in the nursing home 90 days later were considered low-care. These results suggest that a substantial number of adults aged 22 to 64 with serious mental illness residing in nursing homes may have the functional capacity to live in the community with appropriate supports. Clearly, state investment in HCBS alternatives may create additional community-living opportunities for people with mental illnesses.

A Future Research Agenda on Long-Term Care for Individuals With Serious Mental Illness

In this study we have identified potential reasons for the inappropriate placement of individuals with serious mental illness in nursing homes that should be addressed in future research. Three issues in particular stand out. First, investigation into the effectiveness of the PASRR process is necessary. As noted earlier, PASRR systems function with little oversight from state and federal authorities. Thus, an independent review of the PASRR process, in particular Level II evaluations and determinations, is urgently needed. In several states, empirical data are readily available to conduct such a review. Second, states' investments in community-based services and alternatives to nursing homes for persons with serious mental illness are likely to be related to nursing home admissions in this population. Thus, another important area for investigation is whether states making investments in community-based mental health support systems have lower rates of nursing home placement among persons with serious mental illness, both younger and older than 65. Finally, an important area for future research is to conduct studies to develop cost-effective models of HCBS that specifically attend to the service needs of older adults with serious mental illness. To date, there has been a paucity of research on community-based models that are likely to sustain individuals with serious mental illness in community settings and avoid nursing home placement. Recent research establishes psychosocial rehabilitation as feasible and potentially effective in improving functioning and quality of life in older adults with serious mental illness (Bartels & Pratt, 2009). This is indeed an area that warrants further study as impaired psychosocial functioning is highly associated with increased health care costs,

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premature institutionalization, increases in hospitalizations, and poor physical and health outcomes in older adults with serious mental illness.

Study Limitations

This analysis is limited in several ways. First, our study is predicated upon the validity of the MDS clinical and functional assessment data. The MDS depends on assessment nurses' accurately recording the information. The validity of MDS data has been questioned by many, both because providers have reason to inflate impairment to maximize Medicare and Medicaid payment and because of poor and inconsistent training of nursing home assessors (Lum, Lin, & Kane, 2005; Schnelle et al., 2004). However, studies have generally confirmed the reliability and validity of these data, with some variability across nursing homes (Mor et al., 2003). If anything, one would generally expect underreporting of mental health diagnoses rather than overreporting. The potential for underdiagnosis of serious mental illnesses such as schizophrenia may be related to the onset of dementia in later life, which may mask the underlying schizophrenia (Harvey, 2004). Second, we constructed our sample based on first-time nursing home admissions rather than a single-cross section of residents at a given point in time. As such, our data examine the flow of residents into nursing homes rather than the cumulative number of people with mental illnesses receiving services. Finally, we acknowledge that serious mental illness as identified on the MDS is defined differently from serious mental illness among the general population and thus falls short of clinical measures such as those found in the *DSM-IV*.

CONCLUSION

Nursing home reform measures enacted by the federal government more than 20 years ago aimed to prevent the use of nursing homes as alternatives to state psychiatric hospitals. This paper reveals that today there are still many adults with serious mental illness residing in nursing homes who may have the functional capacity to live in less restrictive environments. Future research will need to consider the underlying reasons for unwarranted nursing home admission in this large, vulnerable, and understudied population.

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TABLE 1

Demographic, Clinical, and Functional Variables Stratified by Serious Mental Illness Status (SMI) (SMI vs. Non-SMI) and Age (<65 vs. 65 Years)

	SMI		Non-SMI	
	<65 (*n* = 13,730)	**65 (*n* = 13,913)**	**<65 (*n* = 110,050)**	**65 (*n* = 956,867)**
Age (*M* ± *SD*)	51.12 ± 9.81	75.50 ± 7.24	54.33 ± 8.85	80.94 ± 7.74
Sex (% male)	50.60	32.83	50.99	35.65
Race (% white)	73.75	83.82	70.42	86.92
Dementia	6.55	26.05	5.03	17.86
Stroke	6.43	10.29	14.08	13.15
Parkinson’s disease	1.66	5.92	0.94	2.54
Congestive heart failure	7.30	13.81	11.58	19.71
Chronic obstructive pulmonary disease	18.00	21.98	15.57	17.87
Arteriosclerotic heart disease	3.30	9.19	6.33	12.01
Diabetes	29.90	28.48	37.72	27.26
Obesity (body mass index > 30 kg/m^2)	40.96	24.70	38.66	20.67
Severe cognitive impairment	7.83	13.82	9.89	10.34
Prior history of psychiatric illness	68.10	48.08	11.22	3.12
Antipsychotic medication use	77.36	67.99	11.45	10.72
Antidepressant medication use	47.96	44.82	36.52	26.04
Anti-anxiety medication use	28.26	22.23	20.34	14.84
Dependence in transfer	55.40	80.92	81.76	91.83
Activities of daily living (*M* ±*SD*)	8.76 ± 7.86	13.61 ± 7.36	13.39 ± 7.98	15.08 ± 6.46
Wandering in the past 7 days	6.73	8.69	2.77	4.90
Low-care status	23.78	9.70	5.75	3.35

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TABLE 2

Proportion of New Nursing Home Admissions Still in the Facility at 90-Day Follow-Up and Low-Care Status (SMI vs. Non-SMI) and Age (<65 vs. 65 Years)

	SMI		**Non-SMI**	
	<65 (*n* = 6,356)	**65 (*n* = 6,796)**	**<65 (*n* = 35,021)**	**65 (*n* = 276,870)**
In facility at 90 days	48.2%	54.3%	34.1%	34.6%
Low-care status	33%	14.0%	8.5%	6.6%

Note. The calculation of the percentage of nursing home residents in the facility after 90 days is based on the total new admissions who survive after 90 days.