Published in final edited form as:

Health Aff (Millwood). 2011 July ; 30(7): 1358–1365. doi:10.1377/hlthaff.2011.0126.

THE CARE SPAN:

Growth Of Racial And Ethnic Minorities In US Nursing Homes Driven By Demographics And Possible Disparities In Options

Zhanlian Feng [assistant professor],

Center for Gerontology and Health Care Research at Brown University, in Providence, Rhode Island. (Zhanlian_Feng@brown.edu)

Mary L. Fennell [professor],

Brown University.

Denise A. Tyler [investigator],

Center for Gerontology and Health Care Research, Brown University.

Melissa Clark [associate professor], and

Brown University.

Vincent Mor [professor]

Brown University.

Abstract

Between 1999 and 2008, the number of elderly Hispanics and Asians living in US nursing homes grew by 54.9 percent and 54.1 percent, respectively, while the number of elderly black residents increased 10.8 percent. During the same period, the number of white nursing home residents declined 10.2 percent. These shifts have been driven in part by changing demographics, especially the fast growth of older minority populations. However, the numbers of minority residents in nursing homes increased more rapidly than the minority population overall, even in areas with high concentrations of minority populations. Thus, these results may indicate unequal minority access to home and community-based alternatives, which are generally preferred for long-term care. When designing initiatives to balance institutional and noninstitutional long-term care, policy makers should take steps to reduce racial and ethnic disparities.

There are seventy-six million US baby boomers—those born between 1946 and 1964—and the oldest of them turn sixty-five in 2011. During the next nineteen years, each day will be the sixty-fifth birthday of about 10,000 boomers.¹ By 2030 the Census Bureau projects that 20 percent of the US population will be sixty-five or older, up from 13 percent today.²

The numbers of elderly people in racial and ethnic minority groups will grow particularly fast. The number of older Hispanics, for instance, will increase from just under 1.8 million in 2000 to more than 8.6 million by 2030, and the number of older Asians, from 0.8 million to 3.8 million.² As the elderly population grows rapidly, the needs for long-term care are likely to increase substantially.

The Changing Long-Term Care Landscape

In the midst of demographic trends such as these, the US long-term care landscape has been undergoing a major transformation in recent years, one marked by a shift away from nursing home care and toward home and community-based services. The rubric of home and community-based services includes private programs as well as a wide array of publicly supported programs that provide eligible people with long-term services and supports.

Most funds for these programs come from what are known as Medicaid 1915(c) waivers, authorized in 1981 in the Social Security Act. States use the waivers to “rebalance” long-term care—that is, to achieve a better balance between institutional and noninstitutional services and supports, in both spending and use. The waivers pay for personal care and other supportive services that enable a subset of Medicaid beneficiaries to live at home or in a residential setting other than a nursing home.³

Not only are home and community-based alternatives less expensive than institutional care, but they are also overwhelmingly preferred by older adults with disabilities, who want to live independently in their homes and communities for as long as possible.^{4,5} Nationally, the percentage of Medicaid long-term care dollars spent on home and community-based services has more than doubled, from 19 percent in 1995 to 42 percent in 2008.⁶ The Affordable Care Act of 2010 creates multiple new opportunities to further expand home and community-based services and to accelerate the pace of rebalancing.⁷

An example of the expanding supply of alternatives to nursing homes is the rapid growth of assisted living facilities. However, these facilities cater primarily to relatively well-to-do people with private health insurance, and they tend to be concentrated in areas whose populations have high levels of education, income, and wealth in the form of equity in the value of personally owned housing.⁸ Such areas are typically suburban and predominantly inhabited by whites.

Given persistent racial disparities in long-term care access and quality,^{9–12} it is unlikely that all population subgroups will be equally able to reap the benefits of public and private initiatives to rebalance institutional and noninstitutional long-term care. As recent studies of nursing home closures have found, the numbers of closures are higher in communities characterized by high rates of poverty, higher proportions of racial and ethnic minority residents, and very few new nursing home openings.¹³ The geographic distribution of newer forms of long-term care is still largely unknown; whether such services are moving into communities that have lost nursing homes is unclear.

Moreover, despite the steady growth of home and community-based services, the majority of Medicaid long-term care spending still goes toward nursing home care. Nursing homes have been, and will continue to be, an integral part of the long-term care continuum for meeting the critical needs of older people who can no longer be supported in their homes.

Gaining a comprehensive understanding of the changing demographic profile of the US nursing home population is both timely and vital, to help policy makers understand and address potential disparities in long-term care among population subgroups.

Study Data And Methods

Demographic shifts and the changing long-term care landscape call for a more comprehensive analysis of the nursing home population in terms of its racial and ethnic mix, and how this mix has changed in recent years. Before the introduction of the nationwide Minimum Data Set—part of the process for clinical assessment of all residents in nursing

homes certified by Medicare or Medicaid, required under a 1987 federal law¹⁴—such analysis was difficult because of data limitations, particularly the exclusion or underrepresentation of Hispanics, Asians, and other minority residents.

Our analysis has two objectives. First, we investigate trends in the racial and ethnic composition of the US nursing home population between 1999 and 2008, using the Minimum Data Set. Second, at a more local level, we examine the association between changes in the racial and ethnic mix of nursing home residents and concurrent demographic shifts among population subgroups within the Census Bureau's Metropolitan Statistical Areas over the study period.

We briefly describe our study methods—including data, measures, and statistical analysis—below. More details are available in the online Appendix.¹⁵

Minimum Data Set

We used the national Minimum Data Set to obtain information on the race and ethnicity of nursing home residents and to calculate the annual number of Americans in nursing homes. Census data and population estimates allowed us to track demographic trends among population subgroups. All data covered a ten-year period, 1999–2008.

Under federal law,¹⁴ the Minimum Data Set is a form that must be completed when a new resident is admitted to a nursing home, and at least quarterly thereafter. It is currently used in all nursing homes certified by Medicare or Medicaid and is the only uniform source of data available on the race and ethnicity of nursing home residents. The form uses five mutually exclusive categories: American Indian or Alaskan Native; Asian or Pacific Islander (hereafter referred to as Asian); black or African American, not of Hispanic origin (hereafter black); Hispanic (regardless of race); and white, not of Hispanic origin (hereafter white). In this analysis we focus on the latter four categories, given the extremely low numbers of Native Americans and Alaskan Natives in nursing homes.

We calculated the annual number of nursing home residents by including all individuals residing in a nursing home on the first Thursday in April of each year. Therefore, the number included both long-term residents (those with a length-of-stay of at least ninety days) and short-term patients receiving postacute care. In each year, the former group constituted more than 80 percent of the total. We excluded residents under age sixty-five and the few subjects with missing information on race and ethnicity.

Census Data And Population Estimates

Data on race, ethnicity, and age for the US population as a whole came from the 2000 national census and annual population estimates for other years in the study period. In the 2000 census, people were allowed to use more than one race category to identify themselves, and Hispanic origin was also a separate option. To make data comparable across sources and years, for 2000–08 we used what are called bridged-race postcensal population estimates—estimates after a census from the National Center for Health Statistics. For 1999 we used intercensal estimates, made between two federal censuses. Both types of estimates follow definitions of race and ethnicity that are consistent with the Minimum Data Set.¹⁶

Study Measures

To measure the racial and ethnic composition of the nursing home population, we used both the absolute number and the percentage share of residents in each racial and ethnic group, both nationally and at the Metropolitan Statistical Area level. Although our results do not report Native Americans or Alaskan Natives as a separate category, they were included in

our calculations of the percentage shares of other racial and ethnic groups. The general population measures were determined similarly, but for each racial and ethnic group, we calculated the number and percentage of people age sixty-five or older, as well as the total population.

Statistical Analysis

We tracked the national trend in the racial and ethnic composition of nursing home residents, 1999–2008, and compared this trend with demographic changes within each racial and ethnic group over the same period. To determine whether growth in nursing home use among a population subgroup was faster, slower, or about the same compared to overall growth in the total population—or to growth in the number of people age sixty-five or older—in the same group, we calculated both the overall and annualized rates of change from 1999 to 2008.

For both 1999 and 2008, we compared the percentage share of nursing home residents per racial and ethnic group across Metropolitan Statistical Areas, which were grouped in quartiles by the percentage of population age sixty-five and older within each racial and ethnic group. Because minority populations are geographically concentrated, we also performed detailed, area-specific analyses (similar to those at the national level) in the ten Metropolitan Statistical Areas that had the largest population of each minority racial and ethnic group.

Limitations

Our analysis was based on annual snapshots of the nursing home population, including everyone residing in a facility at a given point in time. It is noteworthy that the number of older patients discharged from hospitals to nursing homes for short-stay, postacute care has risen substantially since the introduction of the Medicare prospective payment system for hospitals in 1983.^{17,18} Despite this trend, the proportion of long-stay residents in nursing homes has remained quite stable (roughly 80 percent).^{19,20}

Therefore, our portrait of the racial and ethnic profile of the nursing home population is unlikely to be affected by the “churning” of short-stay patients into and out of nursing homes during the study period. Nevertheless, these dynamics in nursing home use do point to the need for future research to track individuals as they transition through nursing homes and other care settings.

Study Results

The national nursing home population declined by 6.1 percent from 1999 to 2008, or by an average of 0.7 percent per year (Exhibit 1). This trend was driven primarily by a decline of 10.2 percent among white residents. In contrast, the total numbers of Hispanic and Asian residents grew 54.9 percent and 54.1 percent, respectively. The number of black residents also grew, although at a slower pace. In relative terms, the percentage of white residents in nursing homes also decreased, while the percentages of blacks, Hispanics, and Asians increased.

Changing Demographics In Population Subgroups

From 1999 to 2008, the US population age sixty-five or older grew at a faster rate than did the total population (Exhibit 1). Both the total and older (age sixty-five or older) populations of blacks, Hispanics, and Asians grew more rapidly than did those of whites. For instance, both the older Hispanic and Asian populations experienced explosive growth (58.2 percent and 64.2 percent, respectively), compared to just 6.7 percent for whites. Growth of the older

black population was less dramatic, at 16.2 percent, but still more than double the rate for whites. The increase of nursing home residents from all groups except whites was highly consistent with the groups' population growth.

Dynamics At The Metropolitan Statistical Area Level

Exhibit 2 shows racial and ethnic percentages of nursing home residents at the level of Metropolitan Statistical Areas in 1999 and 2008. For each racial and ethnic group, we calculated the percentage of the total population age sixty-five or older in each area and divided the areas into quartiles, by group. The percentage of nursing home residents for each minority group was substantially higher in Metropolitan Statistical Areas that had a higher percentage of people age sixty-five or older within the same minority group.

For blacks in 1999, for instance, the average share of nursing home residents was more than nine times higher in the highest quartile than in the lowest—13.7 percent versus 1.5 percent (Exhibit 2). The differences were even larger for Hispanics and Asians in 1999. That is, in Metropolitan Statistical Areas where a minority population was older, there were more members of the minority group in nursing homes. In contrast, no such association was observed among whites. Similar results were seen in 2008.

Comparing data between the columns in Exhibit 2 reveals that the average percentage of minority nursing home residents increased from 1999 to 2008 across all Metropolitan Statistical Area quartiles. This was in contrast to a declining percentage of white residents overall. Furthermore, the annualized rate of growth of the nursing home population and that of the population age sixty-five or older in each minority group tracked each other quite closely across the areas (see Appendix Figure 1).¹⁵

Lastly, we identified for each minority group the ten Metropolitan Statistical Areas that have the largest numbers of people from that group. With rare exceptions, both the minority population age sixty-five or older and the population of minority nursing home residents grew at a considerably faster rate than the overall minority population between 1999 and 2008, no matter which minority group was considered (see Appendix Table 1).¹⁵ The growth was most dramatic in areas with the largest Hispanic or Asian populations. These local patterns are consistent with results at the national level (Exhibit 1).

Discussion

Our analysis is the first to use the national Minimum Data Set¹⁴ to track the most recent trends in the racial and ethnic composition of the nursing home population, along with concurrent demographic shifts at both the national and Metropolitan Statistical Area levels. The results indicate that nationally, both the absolute numbers and the relative shares of minority residents in US nursing homes increased steadily between 1999 and 2008, in contrast to declining numbers and percentages of white residents.

Hispanics and Asians were the fastest-growing minority groups among nursing home residents, followed by blacks. Similar trends and patterns were observed at a more local level across major US metropolitan areas. These findings portray the changing face of the nursing home population, and they signal an important shift in the use of long-term care options among racial and ethnic groups in the US population.

These results should be interpreted in light of two ongoing trends. First, changing demographics appear to be a major driver of recent shifts in the racial and ethnic profile of the nursing home population. Second, the evolving long-term care landscape, shaped by both market forces and public policy efforts to rebalance long-term care, may also be

involved in the observed shifts. Minority elders may well face greater barriers than white elders in access to home and community-based alternatives to nursing home care.

Is Demography Destiny?

Our analysis reveals that between 1999 and 2008, both the numbers of minority nursing home residents and minority older populations have grown rapidly and that these two parallel trends were correlated. Furthermore, the numbers of minority residents in nursing homes increased more rapidly than did either the minority population as a whole or the minority older population in virtually all Metropolitan Statistical Areas with high concentrations of minority populations over the study period. Thus, recent shifts in the racial and ethnic mix of nursing home residents overall have been driven in part by changing demographics, especially the fast growth of older minority populations.

The rapidly growing number of older people who will need long-term care, regardless of setting, will increasingly challenge the country's physical and economic resources. There is troubling evidence that the disabled proportion of the US elderly population grew between 2000 and 2005,²¹ reversing a previously well-documented and long-term trend of declining disability among the elderly.²²

The prevalence of chronic disease among younger populations is also on the rise, which leads to projections of increased morbidity and disability among elderly people of the future.²³ Depending on trends in old-age disability, the availability of informal support networks, and ongoing efforts to rebalance long-term care, the recent downward shift in rates of nursing home use,^{24,25} primarily among elderly whites, may well be halted or reversed in the future. Although not examined in this analysis, the rapid growth in the use of nursing homes by racial and ethnic minority populations may have resulted from ongoing changes in family structures that have led to the declining availability of traditional, family-based care options.^{26–28}

If current trends continue, racial and ethnic minorities—especially older Hispanics and Asians—will become an even larger share of the nursing home population. Ultimately, that population will mirror the racial and ethnic makeup of the elderly US population. This prospect raises concerns about whether nursing homes will be able to provide the culturally sensitive and competent care required to meet the needs of residents from diverse ethnic and cultural backgrounds.

Are Disparities In Long-Term Care Changing?

Historically, disparities in access to nursing homes and other formal long-term care services may have contributed to the lower rates of use of such services by elderly members of minority groups, compared to elderly whites.^{29–31} But as nursing home occupancy rates have declined in most markets, and assisted living and other home and community-based options have proliferated, access to nursing home care may no longer be a problem for elderly minorities.^{10,32}

Our finding of steady increases in the share of older blacks, Hispanics, and Asians in nursing homes in recent years lends support to this interpretation. The apparent increase in minority access to nursing home beds appears to indicate shrinking levels of disparity in long-term care. However, long-stay residents make up more than 80 percent of the nursing home population, and nursing homes are widely perceived as an unfavorable option—and indeed used as the last resort—for long-term care, compared to home and community-based alternatives. Thus, the results reported here may suggest not a lessening but a shifting of disparities, with minorities still underrepresented in preferred sites of care.

In fact, at a more local level, our analysis shows that across metropolitan areas, the relative share of racial or ethnic minority nursing home residents was correlated with the percentage of elderly in the same minority group, but no such correlation existed for whites. This suggests that compared to minority elders, white elders may have more varied choices of care in their communities and may have been better able to afford alternatives to nursing homes such as assisted living facilities, largely used by people with private insurance. Racial and ethnic minorities, in contrast, are more likely to live in socioeconomically disadvantaged areas with limited alternatives to nursing homes.^{8,33}

If increased use of nursing homes by minority elders has resulted in part from a lack of access to home and community-based alternatives, then a renewed concern about access disparities arises. As racial and ethnic minority elderly populations grow rapidly, their demand for nursing home care will increase further. Yet between 1999 and 2008, nearly 16 percent of all nursing homes certified by Medicare or Medicaid closed, resulting in a net loss of more than 5 percent of beds.¹³ More important, these closures were concentrated in minority and poor communities.

These disconcerting facts suggest that disparities in access may be further exacerbated in those communities. It is also important to note that when minority elders do use nursing homes, they are more likely to end up in lower-quality facilities characterized by fewer resources, greater reliance on Medicaid, poorer service, and worse care than available in nursing homes in more affluent communities.^{11,12,33}

Policy Challenges

The results of our analysis can be used to inform current policy efforts intended to rebalance long-term care. We contend that the increased presence of elderly people from racial and ethnic minority groups in nursing homes and the simultaneous exodus of whites are indicative of potential disparities in access to home and community-based alternatives. Policy makers should bear in mind that although home and community-based services are preferred by older people needing long-term care, such services are unlikely to be equally available, accessible, and affordable for all subgroups of the population or across all communities. Ultimately, poor minority elders may be increasingly relegated to nursing homes, while whites with more financial resources are able to use various home and community-based alternatives.

Data on nursing home residents are regularly gathered through mandated inspections of the facilities and assessments of the residents. But aside from accounts that track Medicaid spending on home and community-based services, there is no standardized national data set on home and community-based providers and the clients they serve. Without such information, it is difficult to examine the full range of long-term care options available in local communities, and it is impossible to determine levels of care quality delivered by these different service providers.

Policy efforts to rebalance our long-term care system should be based on full information on the changing long-term care market. Although ideally such a system of data collection would have been developed long ago, it is reasonable to suggest that states now make a coordinated effort to gather information on all home and community-based services that require licensing—including home health services, assisted living facilities, and adult day care providers—when they receive or renew a license.

Conclusion

Recent shifts in the racial and ethnic composition of the US nursing home population indicate that a confluence of market forces and policy initiatives may have unintentionally perpetuated long-existing disparities among racial and ethnic population subgroups in access to nursing homes and home and community-based alternatives to them. New disparities may also have arisen.

Policy makers must pay particular attention to enduring and emerging disparities in long-term care, especially in light of rapid changes in both population demographics and the long-term care landscape. They should also strive to build equity into current efforts to rebalance long-term care.¹⁰ Given the geographic concentration of racial and ethnic minority populations and nursing home residents from those groups, efforts to reduce disparities should target both communities and facilities with high concentrations of minority residents.

Acknowledgments

This work was supported in part by a National Institute on Aging grant (P01AG027296).

NOTES

1. Cohn, D.; Taylor, P. Baby boomers approach age 65—glumly: survey findings about America's largest generation [Internet]. Pew Research Center; Washington (DC): Dec 20. 2010 Available from: <http://pewresearch.org/pubs/1834/baby-boomers-old-age-downbeat-pessimism> [2011 Apr 26]
2. Census Bureau. Projected population by single year of age, sex, race, and Hispanic origin for the United States: July 1, 2000 to July 1, 2050 [Internet]. Census Bureau; Washington (DC): 2008. Available from: <http://www.census.gov/population/www/projections/downloadablefiles.html> [2011 Apr 26]
3. Smith DB, Feng Z. The accumulated challenges of long-term care. *Health Aff (Millwood)*. 2010; 29(1):29–34. [PubMed: 20048357]
4. Kane RL, Kane RA. What older people want from long-term care, and how they can get it. *Health Aff (Millwood)*. 2001; 20(6):114–27. [PubMed: 11816651]
5. Reinhard SC. Diversion, transition programs target nursing homes' status quo. *Health Aff (Millwood)*. 2010; 29(1):44–8. [PubMed: 20048359]
6. Kaiser Commission on Medicaid and the Uninsured. Medicaid home and community-based service programs: data update [Internet]. Kaiser Family Foundation; Washington (DC): Feb. 2011 Available from: <http://www.kff.org/medicaid/upload/7720-04.pdf> [2011 May 23]
7. Shugarman LR. Health care reform and long-term care: the whole is greater than the sum of its parts. *Public Policy & Aging Report*. 2010; 20(2):3–7.
8. Stevenson DG, Grabowski DC. Sizing up the market for assisted living. *Health Aff (Millwood)*. 2010; 29(1):35–43. [PubMed: 20048358]
9. Wallace SP, Levy-Storms L, Kington RS, Andersen RM. The persistence of race and ethnicity in the use of long-term care. *J Gerontol B Psychol Sci Soc Sci*. 1998; 53(2):S104–12. [PubMed: 9520935]
10. Konetzka RT, Werner RM. Disparities in long-term care: building equity into market-based reforms. *Med Care Res Rev*. 2009; 66(5):491–521. [PubMed: 19228634]
11. Smith DB, Feng Z, Fennell ML, Zinn JS, Mor V. Separate and unequal: racial segregation and disparities in quality across US nursing homes. *Health Aff (Millwood)*. 2007; 26(5):1448–58. [PubMed: 17848457]
12. Fennell ML, Feng Z, Clark MA, Mor V. Elderly Hispanics more likely to reside in poor-quality nursing homes. *Health Aff (Millwood)*. 2010; 29(1):65–73. [PubMed: 20048362]
13. Feng Z, Lepore M, Clark MA, Tyler D, Smith DB, Mor V, et al. Geographic concentration and correlates of nursing home closures: 1999–2008. *Arch Intern Med*. 2011; 171(9):806–13. [PubMed: 21220642]

14. Mor V. A comprehensive clinical assessment tool to inform policy and practice: applications of the Minimum Data Set. *Med Care*. 2004; 42(4 Suppl):III50–9. [PubMed: 15026672]
15. To access the Appendix, click on the Appendix link in the box to the right of the article online.
16. Centers for Disease Control and Prevention. US census populations with bridged race categories [Internet]. CDC; Atlanta (GA): [last updated 2011 May 13]. Available from: http://www.cdc.gov/nchs/nvss/bridged_race.htm [2011 May 23]
17. Alliance for Quality Nursing Home Care. [2011 May 23] Trends in post-acute and long-term care. Care Context [serial on the Internet]. Sep. 2009 Available from: http://www.aqnhc.org/www/file/AQNHC_Care_Context_914%20Updated.pdf
18. Reschovsky JD. The demand for post-acute and chronic care in nursing homes. *Med Care*. 1998; 36(4):475–90. [PubMed: 9544588]
19. Decker, FH. Nursing homes, 1977–99: what has changed, what has not?. National Center for Health Statistics; Hyattsville (MD): 2005.
20. Jones, AL.; Dwyer, LL.; Bercovitz, AR.; Strahan, GW. The National Nursing Home Survey: 2004 overview [Internet]. National Center for Health Statistics; Hyattsville (MD): Jun. 2009 (Vital and Health Statistics Series 13, No. 167). Available for download from: http://www.cdc.gov/nchs/nnhs/nnhs_products.htm#sr13 [2011 May 23]
21. Fuller-Thomson E, Yu B, Nuru-Jeter A, Guralnik JM, Minkler M. Basic ADL disability and functional limitation rates among older Americans from 2000–2005: the end of the decline? *J Gerontol A Biol Sci Med Sci*. 2009; 64(12):1333–6. [PubMed: 19723771]
22. Freedman VA, Martin LG, Schoeni RF. Recent trends in disability and functioning among older adults in the United States: a systematic review. *JAMA*. 2002; 288(24):3137–46. [PubMed: 12495394]
23. Goldman DP, Shang B, Bhattacharya J, Garber AM, Hurd M, Joyce GF, et al. Consequences of health trends and medical innovation for the future elderly. *Health Aff (Millwood)*. 2005; 24:W5-R5–17. DOI: 10.1377/hlthaff.W5.R5.
24. National Center for Health Statistics. Health, United States, 2009: with special feature on medical technology. NCHS; Hyattsville (MD): 2010.
25. Bishop CE. Where are the missing elders? The decline in nursing home use, 1985 and 1995. *Health Aff (Millwood)*. 1999; 18(4):146–55. [PubMed: 10425852]
26. Angel JL, Angel RJ, Aranda MP, Miles TP. Can the family still cope? Social support and health as determinants of nursing home use in the older Mexican-origin population. *J Aging Health*. 2004; 16(3):338–54. [PubMed: 15155066]
27. Angel, RJ.; Angel, JL. Who will care for us? Aging and long-term care in multicultural America. New York University Press; New York (NY): 1997.
28. Wolf DA. The family as provider of long-term care: efficiency, equity, and externalities. *J Aging Health*. 1999; 11(3):360–82. [PubMed: 10558591]
29. Morrison BJ. A research and policy agenda on predictors of institutional placement among minority elderly. *J Gerontol Soc Work*. 1995; 24(1–2):17–28.
30. Mui, AC.; Choi, NG.; Monk, A. Long-term care and ethnicity. Auburn House; Westport (CT): 1998.
31. Moss, FE.; Halamandaris, VJ. Too old, too sick, too bad: nursing homes in America. Aspen Systems Corporation; Germantown (MD): 1977.
32. Smith DB, Feng Z, Fennell ML, Zinn J, Mor V. Racial disparities in access to long-term care: the illusive pursuit of equity. *J Health Polit Policy Law*. 2008; 33(5):861–81. [PubMed: 18818425]
33. Mor V, Zinn J, Angelelli J, Teno JM, Miller SC. Driven to tiers: socioeconomic and racial disparities in the quality of nursing home care. *Milbank Q*. 2004; 82(2):227–56. [PubMed: 15225329]

exhibit 1

Racial And Ethnic Composition Of The US Nursing Home Population, The US Population Age Sixty-Five Or Older, And The Total US Population, 1999 And 2008

	<u>1999</u>		<u>2008</u>		<u>Change in number, 1999 to 2008</u>	
	Number	Percent	Number	Percent	Percent change	Percent annualized change
US NURSING HOME RESIDENTS						
White	1,119,047	86.7	1,005,320	82.9	-10.2	-1.2
Black	124,111	9.6	137,519	11.3	10.8	1.2
Hispanic	29,826	2.3	46,201	3.8	54.9	5.0
Asian	12,344	1.0	19,021	1.6	54.1	4.9
Total	1,291,241	100	1,212,912	100	-6.1	-0.7
US POPULATION AGE 65 OR OLDER						
White	29,388,315	84.5	31,371,464	80.9	6.7	0.7
Black	2,808,789	8.1	3,263,766	8.4	16.2	1.7
Hispanic	1,658,811	4.8	2,624,027	6.8	58.2	5.2
Asian	811,977	2.3	1,333,381	3.4	64.2	5.7
Total	34,797,841	100	38,799,891	100	11.5	1.2
TOTAL US POPULATION						
White	197,154,118	70.7	201,775,403	66.3	2.3	0.3
Black	34,722,236	12.4	38,452,228	12.6	10.7	1.1
Hispanic	33,937,795	12.2	46,978,568	15.4	38.4	3.7
Asian	10,957,343	3.9	14,590,362	4.8	33.2	3.2
Total	279,040,168	100	304,374,846	100	9.1	1.0

SOURCES Nursing home residents: Note 14 in text. US population: Note 16 in text. **NOTE** Percentages do not sum to 100 because the totals also include the small number of people from other racial or ethnic groups.

exhibit 2

Nursing Home Residents By Race Or Ethnicity And Percentage Of Total Population Age Sixty-Five Or Older, 1999 And 2008

MSA quartiles, by percent of population age 65 or older within each group	Percent share of residents	
	1999 mean $\pm$ SD	2008 mean $\pm$ SD
WHITE		
1 (lowest)	85.0 $\pm$ 17.0	83.7 $\pm$ 15.1
2	86.0 $\pm$ 11.9	86.1 $\pm$ 15.0
3	88.2 $\pm$ 10.0	82.9 $\pm$ 14.0
4 (highest)	86.7 $\pm$ 14.6	82.5 $\pm$ 17.1
BLACK		
1 (lowest)	1.5 $\pm$ 3.2	2.1 $\pm$ 4.5
2	8.1 $\pm$ 8.4	8.7 $\pm$ 9.0
3	12.3 $\pm$ 11.5	14.0 $\pm$ 12.6
4 (highest)	13.7 $\pm$ 9.9	15.6 $\pm$ 10.8
HISPANIC		
1 (lowest)	0.4 $\pm$ 0.5	0.9 $\pm$ 1.4
2	1.3 $\pm$ 1.9	2.1 $\pm$ 3.4
3	2.9 $\pm$ 4.1	3.6 $\pm$ 5.0
4 (highest)	8.1 $\pm$ 17.6	11.0 $\pm$ 20.0
ASIAN		
1 (lowest)	0.1 $\pm$ 0.1	0.3 $\pm$ 0.4
2	0.2 $\pm$ 0.2	0.4 $\pm$ 0.7
3	0.3 $\pm$ 0.5	1.0 $\pm$ 2.4
4 (highest)	2.5 $\pm$ 9.1	2.9 $\pm$ 9.7

SOURCES Nursing home residents: Note 14 in text. US population: Note 16 in text. **NOTES** $N = 323$. MSA is Metropolitan Statistical Area. SD is standard deviation.