

Disparities in Post-Transition Outcomes by Level of Care Needs Among Former Nursing Home Residents

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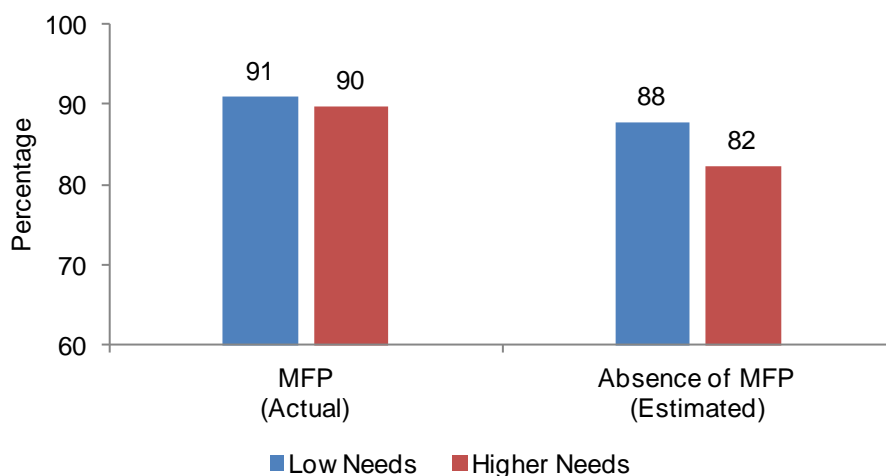
EXECUTIVE SUMMARY

The success of transition programs, such as the Money Follows the Person (MFP) demonstration, partly depends on the ability of long-term care systems to serve people with a wide range of needs for long-term services and supports (LTSS). This report looks at short-term outcomes for people who transition from nursing facilities to the community, and the extent to which their level of care is associated with their ability to remain in the community after they transition.

Key Findings

- Nursing home residents who had low care needs and transitioned to community living, through MFP or by other means, were slightly more likely to remain in the community and avoid reinstitutionalization than those with higher care needs.
- Although inconclusive, some evidence points to MFP and improvements in post-transition outcomes, including increased community residence (see Figure 1).

Figure 1. Rates of Remaining in the Community for at Least Six Months Among Former Nursing Home Residents: With and Without MFP and by Level of Care Needs



Source: Mathematica analysis of Medicaid Analytic eXtract (MAX) data from 2005 to 2009; MDS 2.0 data from 2005 to 2009 for 18 MFP grantee states.

Note: The analysis is based on a sample of 600 MFP participants who transitioned in 2008–2009. The rates in the right two columns present regression-based estimates that predict what would have happened to this sample if MFP had not been implemented. See the Data and Methods section for details of the analysis.

About the Money Follows the Person (MFP) Demonstration

The MFP demonstration, first authorized by Congress as part of the Deficit Reduction Act of 2005 and then extended by the Patient Protection and Affordable Care Act of 2010, is designed to shift Medicaid's long-term care spending from institutional care to home- and community-based services. Congress authorized up to \$4 billion in federal funds to support a twofold effort by state Medicaid programs to (1) transition people living in long-term care institutions to homes, apartments, or group homes of four or fewer residents and (2) change state policies so that Medicaid funds for long-term care services and supports can "follow the person" to the setting of his or her choice. MFP is administered by the Centers for Medicare & Medicaid Services (CMS), which initially awarded MFP grants to 30 states and the District of Columbia in 2007 and awarded grants to another 13 states in February 2011 and to 3 more states in 2012. CMS contracted with Mathematica to conduct a comprehensive evaluation of the MFP demonstration and to report the outcomes to Congress.

INTRODUCTION

The overall success of transition programs, such as the MFP demonstration, will be determined in part by the ability of these programs to maintain the people they serve in the community and prevent readmission to institutional care. Care transitions can be disruptive and costly for people who need LTSS. MFP programs regularly report that for many served by the program, the transition planning process is time-consuming. Transition coordinators may spend considerable time working to identify and secure suitable housing and community services (Williams et al. 2013; Williams et al. 2012; Lipson et al. 2011). This report focuses on the influence of one key factor, the level of care needs, on readmission to institutional care among nursing home residents who transition to home and community-based services (HCBS).¹ The aim of this report is to determine if there is any relationship between the level of need a transitioner has and his or her ability to remain in the community at least six months after transitioning to the community. Given that a relationship exists, we assess whether MFP affects this relationship. That is, if people's level of care needs influences their likelihood of reinstitutionalization, do programs like MFP, which emphasizes and formalizes the role of transition coordinators, attenuate this relationship so that people's level of need for care has little or no influence on their ability to remain living in the community?

At the time of this report, the national evaluation of MFP had not assessed the factors associated with remaining in the community and reinstitutionalization rates. The evaluation has focused on assessing the level of care needs of MFP participants who transitioned from nursing homes and comparing their level of care needs with others who have made a similar transition

¹ Level of care needs is related to an individual's need for assistance with activities of daily living, such as bathing, dressing, eating, and toileting, as well as activities such as cooking, cleaning, and shopping. In this study, we used an approach developed by others to define someone's level of care needs based on the nursing home Resource Utilization Group categories (Ikegami 1997; Mor et al. 2007; Ross et al. 2012).

without the benefit of the MFP program. The purpose was to determine whether and how MFP participants differed from others who transitioned to the community. This previous analysis by Ross et al. (2012) indicated that about 21 percent of MFP participants who transitioned from nursing homes in 2008 and 2009 had low care needs, although this proportion varied widely across the states. Compared with others who transitioned without the benefit of MFP, MFP participants during the first two years of the program were younger and more likely to have low care needs, and they were less likely to be cognitively impaired relative to others who transitioned from nursing homes. In other work presented in Irvin et al. (2012), the national evaluation of MFP assessed state-level rates of community residence and reinstitutionalization among all who have transitioned from institutional care to HCBS during MFP's earliest years. The purpose of this previous work was to determine whether MFP was associated with changes in the state-level post-transition outcomes among everyone who transitioned from institutional- to community-based care. However, this previous work did not assess the factors associated with community residence and reinstitutionalization. This report brings the two threads of research together to determine whether people's level of care needs plays a role in the likelihood of residing in the community for at least six months. Moreover, it examines whether participation in the MFP program influences the relationship between the level of care needs and this community residence outcome. That is, among beneficiaries with the same level of care needs, the study also investigates whether those who were transitioned by MFP programs had better post-transition outcomes than those who transitioned without the benefit of MFP.

DO THE POST-TRANSITION OUTCOMES OF NURSING HOME RESIDENTS WITH LOW CARE NEEDS DIFFER FROM THOSE WITH HIGHER CARE NEEDS?

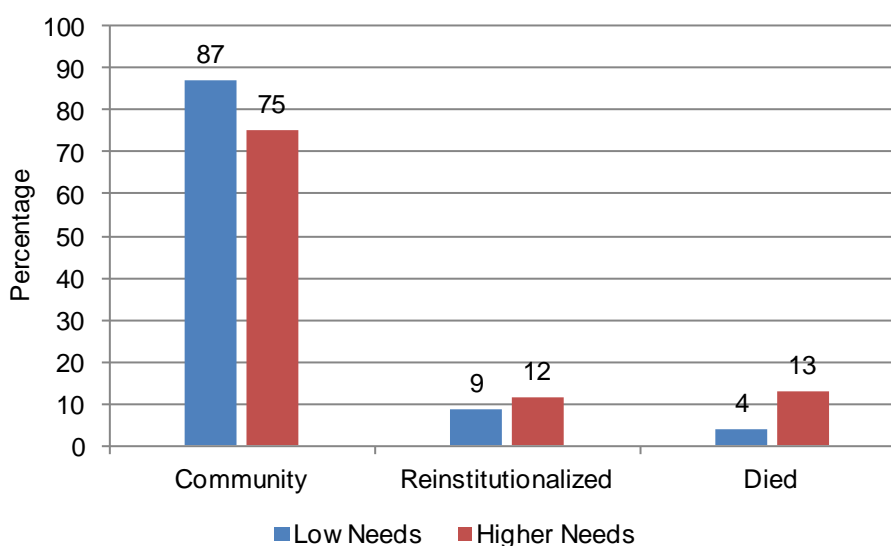
Descriptive analyses indicate that someone's level of care needs is related to the likelihood of remaining in the community at least six months after the transition from nursing home care to HCBS (see Figures 2 and 3). On average, nursing home residents of all ages who have low care needs have slightly higher rates of remaining in the community at least six months after they transition, compared with those with higher care needs.

Elderly Former Nursing Home Residents. In our study sample² of elderly individuals who transitioned from nursing homes to community living, either through MFP or by other means, 87 percent of those with low care needs were able to remain in the community for at least six months after transitioning. However, only 75 percent of those with higher care needs were able to do so (see Figure 2).

² The study sample consists of 10,241 elderly individuals age 65 and over, and 3,248 individuals under age 65 with physical disabilities. The sample represents individuals from 18 MFP grantee states who transitioned from nursing homes between January 2005 and June 2009 (through MFP or by other means), maintained Medicaid eligibility for six months following their transition, and who had a valid Minimum Data Set 2.0 assessment near the time of the transition. The analysis includes both MFP participants and others not in MFP who transitioned during the same time period, but without the benefit of the MFP program.

Although mortality explains much of the difference in the likelihood that elderly individuals with low care needs were able to remain in the community, compared with those with higher care needs, reinstitutionalization rates were slightly lower among low-needs individuals than higher-needs individuals. Approximately 13 percent of elderly individuals with higher care needs died within six months of their transition to community living, compared with only 4 percent of those with low care needs. Because end of life is often associated with high care needs, the data may be capturing a natural phenomenon for high-needs individuals who are able to transition to HCBS, which may include hospice care. Transitions in these cases cannot be viewed as unsuccessful outcomes. Nonetheless, a minor disparity in reinstitutionalization rates between high- and low-needs elderly warrants further study.

Figure 2. Post-Transition Outcomes Among the Elderly, by Level of Care Needs (Unadjusted Estimates)

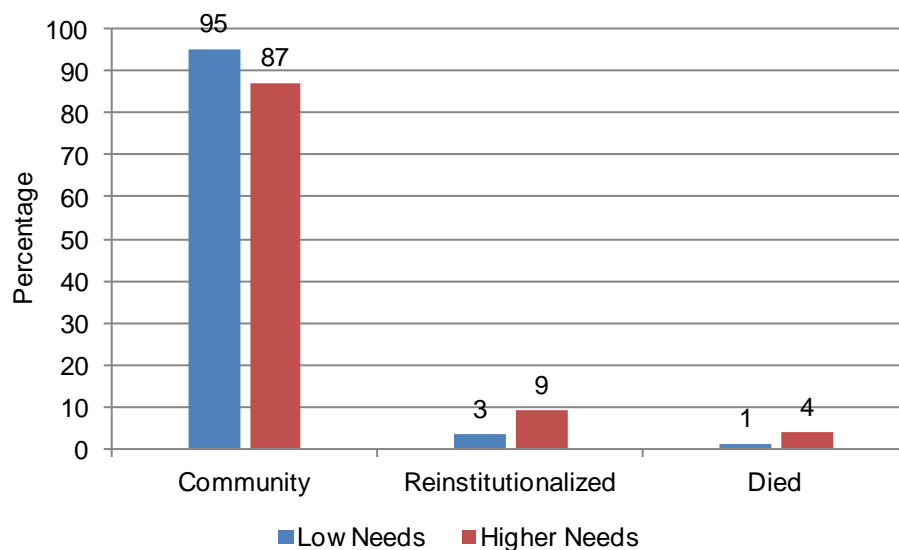


Source: Mathematica analysis of Medicaid Analytic eXtract (MAX) data from 2005 to 2009; MDS 2.0 data from 2005 to 2009 for 18 MFP grantee states.

Note: The sample population consists of 1,907 and 8,334 elderly with low and higher care needs, respectively.

Non-Elderly Former Nursing Home Residents. Similar patterns appear among non-elderly individuals with physical disabilities; 95 percent of nursing home residents who had low care needs were able to remain in the community at least six months post-transition, whereas only 87 percent of those with higher care needs did so (see Figure 3). Unlike the elderly, reinstitutionalization appears to explain much of the difference in the likelihood that non-elderly with low care needs are able to continue to live in the community after they transitioned, compared with those with higher care needs. Non-elderly with higher care needs were more likely, by six percentage points, to return to an institution within six months after their transition than those with low care needs. In contrast, the difference in mortality between non-elderly with low and higher care needs was only three percentage points. These differences between the two age groups suggest that if transition programs want to reduce reinstitutionalization rates, they may have to develop different interventions for each group.

Figure 3. Post-Transition Outcomes Among Non-Elderly Individuals with Physical Disabilities, by Level of Care Needs (Unadjusted Estimates)



Source: Mathematica analysis of Medicaid Analytic eXtract (MAX) data from 2005 to 2009; MDS 2.0 data from 2005 to 2009 for 18 MFP grantee states.

Note: The sample population consists of 639 and 2,609 individuals under age 65 with physical disabilities with low and higher care needs, respectively.

DO DIFFERENCES IN REINSTITUTIONALIZATION RATES BY LEVEL OF CARE NEEDS VARY BY STATE?

The differences in the rates of reinstitutionalization by care needs varied somewhat across states when the descriptive information was disaggregated by state. In 10 of the 18 states in the study, the rate at which transitioners with higher care needs were reinstitutionalized within six months after transition was at least 5 percentage points higher than for those with low care needs. However, because disaggregating by state led to reduced sample sizes, the differences were statistically significant for only three states—Maryland, North Carolina, and Texas. More years of data will be necessary before sufficient sample sizes are available for all states.

WHAT OTHER CHARACTERISTICS ARE RELATED TO POST-TRANSITION OUTCOMES?

Although higher care needs when looked at in isolation are associated with a somewhat lower likelihood of remaining in the community post-transition, this disparity may be driven by other factors, such as availability of family and informal supports, age, or behavioral problems that are highly correlated with level of care needs. In fact, other characteristics are likely to be predictive of post-transition outcomes as well. Therefore, we conducted a multivariate analysis to control for other factors that are available from the nursing home Minimum Data Set, including the activities of daily living (ADL) summary score, which captures the resident's need for personal assistance; presence of behavioral problems; cognitive performance; presence of depressive symptoms; and pain.

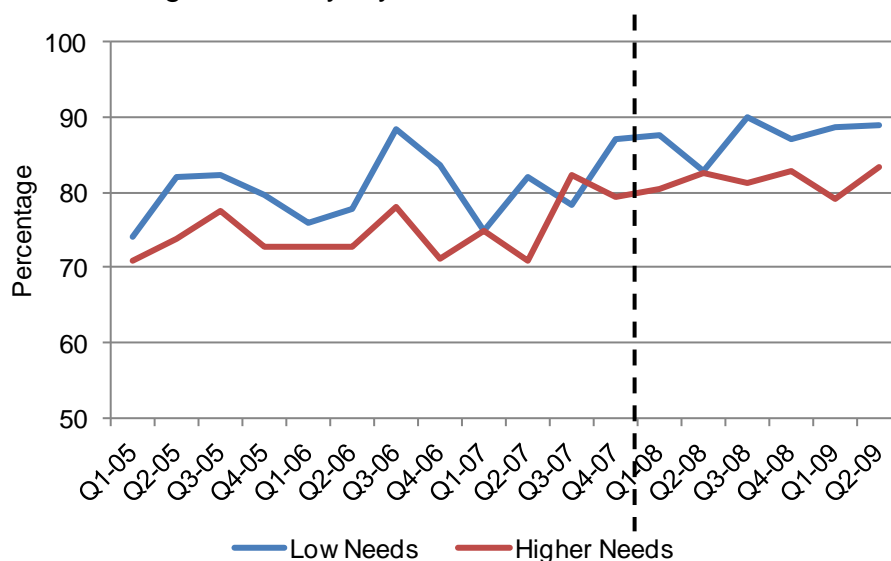
We found that when controlling for other factors, having higher care needs continues to be associated with a slightly lower likelihood of remaining in the community at least six months after transition. The reduction in the disparity is greater among the elderly than the nonelderly. When controlling for other factors, elderly transitioners with low care needs have a 6-percentage-point-higher probability of remaining in the community and a 2-percentage-point-lower probability of being reinstitutionalized than those with higher care needs—compared with a 12- and 3-percentage-point difference, respectively, when not accounting for other factors. That is, when we control for other factors, the difference in the probability of remaining in the community is reduced by half, and the probability of returning to institutional care is reduced by one-third. Similarly, younger individuals with physical disabilities with low care needs have a 6-percentage-point-higher probability of remaining in the community and a 5-percentage-point-lower probability of being reinstitutionalized than those with higher care needs—compared with an 8- and 6-percentage-point difference, respectively, when not accounting for other factors. These results suggest that the differences in community residence and reinstitutionalization we observe between those with low and higher care needs is in part explained by other factors, but differences still remain. At a minimum, it is important to control for these other factors when assessing factors that influence post-transition outcomes across groups with different levels of need.

IS MFP ASSOCIATED WITH IMPROVED POST-TRANSITION OUTCOMES OVERALL, AND WAS THIS IMPROVEMENT EQUALLY SHARED?

The previous findings suggest that having higher care needs increases the likelihood that someone will return to institutional care within six months of his or her transition to the community. Given that MFP is designed to help people transition from nursing facilities and into community life, it is important to assess whether this type of program can help people remain in the community for longer periods after they transition and reduce the likelihood of reinstitutionalization. It is important to note that the following analysis is restricted to transitions that occurred during the first one and a half years of the MFP demonstration, and it is possible that MFP programs and the communities needed time to learn how better to serve people and to increase their time in the community post-transition.

Elderly Former Nursing Home Residents. Rates of elderly transitioners (through MFP or other means) remaining in the community at least six months post-transition improved over time from 2005 to mid-2009 for those with low care needs as well as those with higher care needs, but the difference between the two groups, though small, remained by the end of the analysis period. Figure 4 shows that rates of remaining in the community improved from roughly 75 percent to 85 percent between 2005 and 2009 and that the elderly with low care needs were slightly more likely to remain in the community than those with higher care needs. The descriptive data do not clearly suggest that the disparity across the two groups changed after the introduction of MFP. The overall improvement in remaining in the community can largely be explained by a reduction in the rate of post-transition mortality over this period, from more than 15 percent to less than 10 percent (data not shown). Rates of reinstitutionalization were relatively stable at about 10 percent during this period. In either case, we did not observe a noticeable divergence in rates between low and higher care needs after 2008.

Figure 4. Regression-Adjusted Trends in the Rate of Remaining in the Community for at Least Six Months Among the Elderly, by Level of Care Needs



Source: Mathematica analysis of Medicaid Analytic eXtract (MAX) data from 2005 to 2009; MDS 2.0 data from 2005 to 2009 for 18 MFP grantee states.

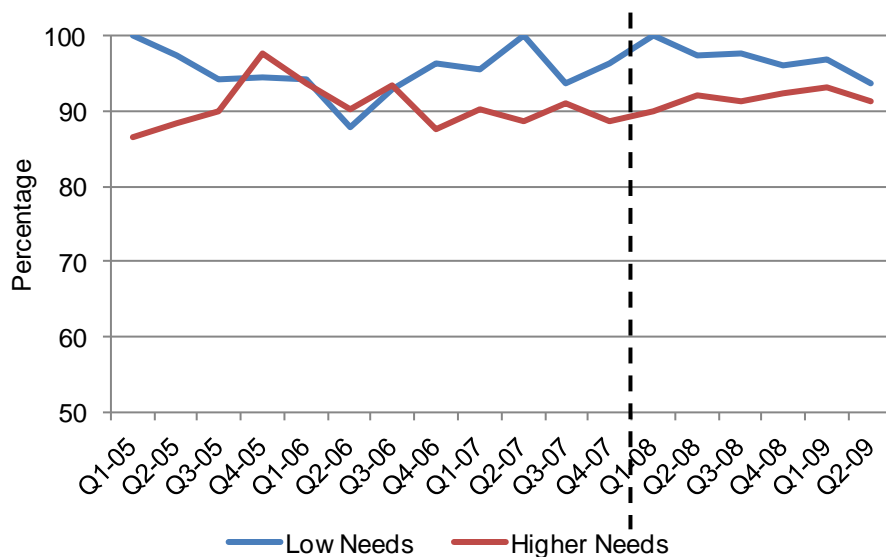
Note: The dashed line indicates the start of the national MFP demonstration in 2008.

Non-Elderly Former Nursing Home Residents. For the non-elderly with physical disabilities, the rate of remaining in the community post-transition has remained stable and high over time (see Figure 5), and the descriptive data do not suggest that the introduction of MFP changed the disparity observed between people with low and higher care needs. Consistent with earlier findings, those with lower care needs had a slightly higher rate of remaining in the community than those with higher care needs, and the gap between them has remained fairly consistent over time.

ARE MFP PROGRAMS ABLE TO MINIMIZE THE DISPARITIES ASSOCIATED WITH THE LEVEL OF CARE NEEDS AND POST-TRANSITION OUTCOMES?

A more direct way of assessing the influence of MFP on disparities in post-transition outcomes would be to compare MFP transitioners with non-MFP transitioners. Conducting this type of comparison is challenging because MFP participants tend to be younger and healthier than non-MFP transitioners, requiring us to disentangle case-mix differences from program effects. We attempt to account for the differences in observable characteristics by using multivariate regression models to predict post-transition outcomes for MFP participants in the absence of the MFP program. The prediction is based on using non-MFP transitioners, people who transitioned without the benefit of the MFP program in the three years before the national program was implemented (2005 through 2007), as a counterfactual. Details about the approach are presented in the Data and Methods section at the end.

Figure 5. Regression-Adjusted Trends in the Rate of Remaining in the Community for at Least Six Months Among Individuals with Physical Disabilities, by Level of Care Needs



Source: Mathematica analysis of Medicaid Analytic eXtract (MAX) data from 2005 to 2009; MDS 2.0 data from 2005 to 2009 for 18 MFP grantee states.

Note: The dashed line indicates the start of the national MFP demonstration in 2008.

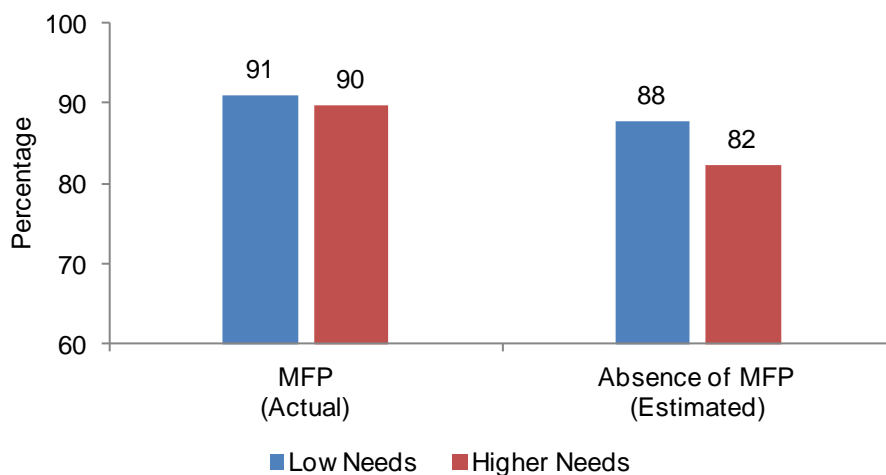
The evidence, although inconclusive because the results are not statistically significant, suggests that participation during the early years of MFP improved post-transition outcomes regardless of level of care needs. Approximately 91 percent of MFP transitioners (both elderly and non-elderly with physical disabilities combined) with low care needs were able to remain in the community, whereas we estimate that only 88 percent of them would have been able to remain in the community in the absence of MFP (see Figure 6).³ Among MFP transitioners with higher care needs, 90 percent were able to remain in the community, and only 82 percent of these transitioners would have been able to remain in the community in the absence of MFP. MFP is associated with a reduction in the difference between the two levels of care needs, changing from a 6 percentage-point difference in the absence of MFP to a 1 percentage-point difference under MFP. However, this reduction of five percentage points is not statistically significant. When conducting separate analyses for the elderly and non-elderly with physical disabilities, we find the same general pattern—that individuals would have slightly poorer outcomes had they transitioned without the benefit of the MFP program.⁴ Additionally, when focusing on

³ The analysis combined elderly individuals and individuals with physical disabilities because the sample sizes would otherwise have been too small to produce reliable estimates. The results are similar when doing the analyses separately, as described in the text.

⁴ We also repeated the analysis where we excluded Texas, which had a state MFP program before the national program was implemented. Our findings were robust to this exclusion.

reinstitutionalization rates, we find that MFP is associated with reductions in reinstitutionalization rates regardless of level of care needs, but that there is inconclusive evidence that MFP is associated with a reduction in the difference between the two levels of care needs.

Figure 6. Rates of Remaining in the Community for at Least Six Months Among Former Nursing Home Residents: With and Without MFP and by Level of Care Needs



Source: Mathematica analysis of Medicaid Analytic eXtract (MAX) data from 2005 to 2009; MDS 2.0 data from 2005 to 2009 for 18 MFP grantee states.

Note: The analysis is based on a sample of 600 MFP participants who transitioned in 2008–2009. The rates in the right two columns present regression-based estimates that predict what would have happened to this sample if MFP had not been implemented. See the Data and Methods section for details of the analysis.

The overall implication is that if MFP had not been implemented, the disparity by level of care needs would have been larger. Most likely, the lack of statistical significance when predicting what would have happened in the absence of MFP reflects the relatively small number of MFP participants we had to predict outcomes for the counterfactual if MFP had not been available. Further research with larger samples of MFP participants who transitioned when MFP was a more mature program would test the robustness of these results.

DISCUSSION

Overall, we found that on average, nursing home residents who had low care needs and transitioned to community living were slightly more likely than those with higher care needs to remain in the community and avoid reinstitutionalization. We also found limited but positive evidence that in the early years of the MFP demonstration, grantees were able to improve rates of remaining in the community for individuals with both high and low levels of care needs and that MFP programs may be helping to address the disparities in outcomes between the low and higher level of care groups.

This study has several limitations, many of which make it difficult to assess the true effects of the MFP demonstration on disparities in post-transition outcomes. In particular, the data limited this study in important ways. The short time frame of the study and our inability to study transitions beyond the first year and a half of the demonstration reflect the lags in the availability of Medicaid data. It is possible that a longer time frame is needed, both in terms of the overall demonstration and in terms of measuring post-transition outcomes beyond the first six months after the transition to the community. It is possible that as communities and community-based providers gain more experience with the MFP program, they will enhance their capacity to serve participants and others who transition to the community after a long residence in institutional care. This analysis was restricted to the first 6 months after the transition, and it is possible that looking 12 or even 24 months after the transition would show different patterns of remaining in the community between those with low and higher care needs. On the other end of the spectrum, this study most likely missed very short transitions where reinstitutionalization happened within the first 60 days. The service dates in long-term-care claims records are considered accurate only to the month and not to the day. Hence, to identify a transition we had to observe at least two consecutive calendar months without an institutional care claim for us to feel confident that we had observed the actual conclusion of an institutional stay. If individuals attempted to transition but could not remain in the community for more than two calendar months, these short transitions would not be captured in our analysis, and their exclusion would possibly bias our results.

Data also limited the scope of the analysis in terms of the factors that were studied. The characteristics studied were derived from the MDS. To the extent that the level of care needs changed between the time the data were collected and the time of transition (which could be up to a year), this lag would add noise to our results. Lastly, this study focused primarily on level of care need. Though this characteristic has been looked at in other studies, other characteristics may be relevant to the post-transition outcomes we studied.

Developing a credible comparison group to account for the selected nature of MFP participants is difficult and imperfect. We know from other work that MFP participants tend to be younger and healthier than other people who experience the same transition within the same state (Schurrer and Wenzlow 2011; Irvin et al. 2012). The data do not allow us to control for a program's selection criteria that may be correlated with, among other things, care needs, services available from MFP, and services available from family and friends. Because we have no information on these criteria, such as the availability of informal supports, we are forced to assume that such support is random with respect to the transition decision. This assumption is unlikely to hold and will cause our estimates to be biased. Thus, future work covering more years following the implementation of MFP and also including non-MFP states as controls would be useful for assessing the true effects of the MFP demonstration on disparities in post-transition outcomes by level of care needs.

Lastly, although we found evidence that suggests differences in outcomes by level of care needs, we were unable to identify what contributed to these differences. Given the variation across states in reinstitutionalization rates, it is possible that a deeper understanding of the different contexts, policies, and benefit structures across the various states might shed light on how to improve community retention rates for people moving from nursing facilities and into communities across the country, especially for those with higher care needs.

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REFERENCES

- Ikegami, Naoki, John N. Morris, and Brant E. Fries. "Low-Care Cases in Long-Term Care Settings: Variation Among Nations." *Age and Aging*, vol. 26, suppl. 2, 1997, pp. 67–71.
- Irvin, Carol, Debra Lipson, Samuel Simon, Matthew Hodges, Alex Bohl, Victoria Peebles, Jeremy Bary, Matthew Sweeney, Laura Ruttner, Sean Orzol, and John Schurrer. "Money Follows the Person 2011 Annual Evaluation Report." Submitted to Centers for Medicare and Medicaid Services, Disabled and Elderly Health Programs Group. Washington, DC: Mathematica Policy Research, October 2012.
- Lipson, Debra J., Christal Stone Valenzano, and Susan R. Williams. "What Determines Progress in State MFP Transition Programs." *The National Evaluation of the Money Follows the Person Demonstration Grant Program, Reports from the Field No. 8*. Cambridge, MA: Mathematica Policy Research, October 2011.
- Mor, Vincent, Jacqueline Zinn, Pedro Gozalo, Zhanlian Feng, Orna Intrator, and David C. Grabowski. "Prospects for Transferring Nursing Home Residents to the Community." *Health Affairs*, vol. 26, no. 6, 2007, pp. 1,762–1,771.
- Ross, Jessica, Sam Simon, Carol Irvin, and Dean Miller. "Institutional Level of Care Among Money Follows the Person Participants." *The National Evaluation of the Money Follows the Person Demonstration Grant Program, Reports from the Field No. 10*. Cambridge, MA: Mathematica Policy Research, October 2012.
- Schurrer, J., and A. Wenzlow. "A First Look at How MFP Participants Fare After Returning to the Community." *The National Evaluation of the Money Follows the Person Demonstration Grant Program, Reports from the Field No. 7*. Ann Arbor, MI: Mathematica Policy Research, July 2011.
- Williams, Susan R., Debra Lipson, Noelle Denny-Brown, Rebecca Lester, Bailey Orshan, Christal Stone, and Matthew Kehn. "Money Follows the Person Demonstration: Overview of State Grantee Progress, July to December 2011." Final report submitted to the Centers for Medicare & Medicaid Services, Division of Community Services Transformation, Disabled and Elderly Health Programs Group. Cambridge, MA: Mathematica Policy Research, June 2012.

Williams, Susan R., Eric Morris, Bailey Orshan, Noelle Denny-Brown, Matthew Kehn, Jessica Ross, and Christal Stone. "Money Follows the Person Demonstration: Overview of State Grantee Progress, July to December 2012." Final report submitted to the Centers for Medicare & Medicaid Services, Division of Community Services Transformation, Disabled and Elderly Health Programs Group. Cambridge, MA: Mathematica Policy Research, July 2013.

DATA AND METHODS

Data Sources and Sample

This study relied on data from (1) MFP administrative data, (2) Medicaid Analytic eXtract (MAX) and Beta-MAX data files, and (3) Minimum Data Set (MDS) 2.0. MAX files, produced by CMS and extracted from the Medicaid Statistical Information System (MSIS), a person-level data system containing eligibility, claims, and encounter information for all Medicaid beneficiaries. MAX data were used to determine post-transition outcomes. The MDS assessment contains items that measure physical, psychological, and psychosocial functioning. We derived individual-level characteristics—ADL summary score, presence of a behavioral problem, cognitive performance, presence of depressive symptoms, and pain—from the MDS.

The sample consisted of elderly individuals age 65 and older and individuals between the age of 18 and 64 with physical disabilities from 18 of the original MFP grantee states. These individuals transitioned between January 2005 and June 2009; maintained Medicaid eligibility for the full six months following their transition, or up to the point of death if it occurred within those six months; and had a valid MDS assessment. The 18 states represent states for which there were reliable MAX data through 2009. Chapter V of Irvin et al. (2012) provides further details on the construction of the data and sample.

Post-Transition Outcomes

We assign transitioners to one of three mutually exclusive outcome categories: (1) remained in the community within six months of transition, (2) became reinstitutionalized within six months of transition, or (3) died within six months of transition, prior to becoming reinstitutionalized, if that was the case. A transition was defined as an instance in which a Medicaid beneficiary ended his or her institutional stay for more than two calendar months and also received HCBS. We imposed the HCBS-receipt restriction because the majority of MFP participants receive HCBS after leaving institutional care, and we wanted the non-MFP transitioners to be as similar as possible to the MFP participants in the sample. Non-MFP transitioners were also required to be in an institution for at least 180 days prior. For MFP participants, MFP program participation data files were used to identify transition dates. Transitioners who became reinstitutionalized and then subsequently died were assigned to the reinstitutionalized category. A transitioner is considered as being reinstitutionalized if we observe an institutional claim in MAX within 180 days of the transition date. If a person neither returned to an institution nor died within six months of transition, then he or she is considered as remaining in the community.

Level of Care

Level of care was determined using the most recent MDS assessment that had complete Resource Utilization Group (RUG) variables and an assessment reference date no earlier than one year prior to the individual's transition date. RUGs are categories that reflect resource need in long-term care settings that Medicare uses to determine nursing home reimbursement. We identified individuals with low care needs using the definition employed by Ikegami (1997) and Mor et al. (2007), which is based on the RUGs categories.

Regression Methods

We derive regression-adjusted estimates of disparities in post-transition outcomes using a multinomial logistic regression model. Covariates included age, gender, race, level of care, ADL summary score, presence of a behavioral problem, cognitive performance, presence of depressive symptoms, pain, and state fixed effects. Using estimates provided by the model, we computed predicted post-transition outcomes at fixed values of the relevant characteristic and then averaged over the sample.

For regression-adjusted estimates of trends of disparities in post-transition outcomes, we added quarter indicators and quarter-by-level-of-care indicators to the above model, computed predicted post-transition outcomes at fixed values of level of care, and then averaged over the sample, by quarter. For the sample of people with physical disabilities, we did not model the probability of death, because mortality was a relatively rare event within this population.

We derived estimates of disparities in post-transition outcomes among MFP transitioners in the absence of MFP by using a multinomial logistic regression model. In addition to the covariates used in the models above, we included variables indicating whether an individual was an MFP participant and interactions with this variable and level of care indicators. We also included a linear time trend. We included non-MFP transitioners in the pre-MFP period as a control group. We did not include non-MFP transitioners from the post-MFP period to minimize bias from selection. Using estimates provided by the model, we computed for the MFP participants predicted post-transition outcomes in the absence of MFP by setting the indicator for MFP participation and its interactions to zero.

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