



# **STUDY OF THE IMPACT OF MONITORING THE HEALTH OUTCOMES FOR DISABLED**

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**U.S. Department of Health and Human Services  
Assistant Secretary for Planning and Evaluation  
Office of Disability, Aging and Long-Term Care Policy**

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# EXECUTIVE SUMMARY

## Introduction

Home health is an important and popular service for Medicare beneficiaries. In the early part of the 1990s, dramatic growth in program expenditures for home health care raised concerns not only about the strain on the Medicare trust fund but also about the quality of care delivered and the efficiency of service provision.

From 1990 to 1996, expenditures for home health services grew 350%. The number of home care agencies also almost doubled during this period, thus increasing the supply of available services. Policy makers voiced concerns about the appropriateness the increases in home health care use. In 1995, the Centers for Medicare and Medicaid Services (CMS), the Office of Inspector General (OIG), and the Administration on Aging (AOA) jointly implemented Operation Restore Trust (ORT), an effort to identify fraud and abuse in home health agencies, nursing homes, and medical equipment suppliers. Later efforts expanded ORT, imposed penalties on physicians for knowingly certifying patients for Medicare home health who did not meet the eligibility requirements, and initiated a moratorium on the certification of new home health agencies.

*This study examines the satisfaction of disabled Medicare home health users with the services they receive.*

While these measures focused on compliance initiatives within the home health industry, there also was a belief that much of the problem of the increasing expenditures rested with the relatively open-ended reimbursement system. The Balanced Budget Act (BBA) of 1997 addressed this issue by legislating the implementation of a prospective payment system (PPS) to reimburse home health agencies. The legislation also mandated the use of an interim payment system (IPS) to limit costs while the PPS was being developed. The IPS was phased in beginning in October 1997 with the start of each agency's cost reporting period. Under the IPS, agency reimbursement was constrained by the tightening of an already existing aggregate per-visit cost limitation and by the addition of an aggregate per-beneficiary cost limit. The IPS continued until the PPS went into effect in October 2000.

## Purpose of the Study

Because of these IPS home health reimbursement limits, executive agencies and policy analysts expressed concern that access to home care could be endangered, especially for those beneficiaries needing the most care. There was also concern that the

quality of care provided might be adversely impacted. It was these issues that led to studies of the effects of the BBA during the period when the IPS was in place.

This Executive Summary reports on the results of the Office of Assistant Secretary for Planning and Evaluation (ASPE) funded study of Medicare home health users who are eligible because of disability. This study examines their satisfaction with the home health care received and the quality of their lives. It is part of a larger comprehensive project funded by the Robert Wood Johnson Foundation (RWJF), ASPE, and CMS to better understand the Medicare home health benefit and the impact of the BBA changes on Medicare beneficiaries, home health agencies, and the overall health care system.

Immediately after IPS implementation, home health utilization decreased dramatically. Beneficiaries were screened more carefully for eligibility for services, resulting in more than 20% fewer patients being seen for any home health services. Overall, expenditures were reduced by more than 50%. With these dramatic decreases, there were concerns that beneficiary satisfaction with the care received or with the quality of life might be impacted, especially for vulnerable beneficiaries such as the disabled.

This study focuses on three questions that address these concerns:

- Did disabled Medicare home health users before the BBA differ from disabled home health users after the full implementation of the IPS in their satisfaction with home health care and quality of life?
- Did disabled Medicare home health users differ from elderly Medicare home health users in their levels of satisfaction with home health care and quality of life?
- What characteristics were related to disabled Medicare home health users' satisfaction with the home health care received and quality of life?

Multivariate analyses were conducted to study these questions. The satisfaction measures analyzed examined 18 specific aspects of the beneficiary's satisfaction with home health care received and about the quality of their lives. Sixteen measures related to satisfaction with home health care received. These included questions about overall care from the agency, agency discharge, staff interpersonal relationships, aides' work quality, and nurses' and therapists' work quality. Two quality of life questions asked about satisfaction with life and satisfaction with present personal care arrangements.

## **Results**

*Pre-BBA vs. Post-BBA.* Between the two time periods, there were no significant differences for disabled Medicare beneficiaries' satisfaction with the agency or with their

discharge. Rates of satisfaction with the agency were higher than 90% in both periods, and rates of satisfaction with elements of the discharge were actually as high in post- BBA as pre-BBA. Nine of the 12 aspects of satisfaction that related to staff interpersonal and technical skills also remained at essentially the same level in pre- and post-BBA periods and were not affected by changes due to BBA. However, beneficiaries were less satisfied on the remaining three aspects after the implementation of the IPS. That is, a greater proportion of disabled Medicare home health users believed that there were problems with staff arriving late and with staff rushing through work; dissatisfaction with these measures rose by 12 percentage points. There was a 9 percentage point increase for disabled Medicare home health users who believed that nurses and therapists did not come often enough post-BBA. There was also a significant difference for the quality of life measure relating to satisfaction with present personal care arrangements, which fell among disabled Medicare home health users by 12 percentage points.

*Disabled vs. Aged.* Significantly worse satisfaction levels were found for the disabled as compared to the aged for 9 of the 16 aspects of satisfaction with their home health care

*While there were no significant differences between the two time periods in disabled Medicare beneficiaries satisfaction with the home health agency, there was significantly more dissatisfaction with three aspects of care.*

and both of the quality of life measures. For the nine questions relating to satisfaction with home health care, the percentages were lower by 5-13 percentage points, and for the two quality of life questions the percentages were lower by 16 and 18 percentage points. The disabled were significantly less satisfied both on overall satisfaction with the agency

measures and with their discharge. They also were less satisfied with two staff interpersonal care aspects (staff arriving late, staff paying attention), with aides completing all work, and with nurses and therapists staying long enough and coming often enough.

*Factors Affecting Satisfaction.* Only one variable had a consistent significant effect on the satisfaction measures: having the interview conducted with a proxy. Interviews conducted with proxies reported significantly more dissatisfaction on 6 of the 16 home health care satisfaction measures and on both of the quality of life measures. In general, among the other variables occasionally found significant, there was more dissatisfaction for those patients with debilitating diseases and for those with less functional ability.

## **Conclusion**

The substantial cutbacks in Medicare home health utilization did not result in problems in the satisfaction of those beneficiaries eligible for Medicare because of disability. None of the satisfaction measures that related to overall agency satisfaction or satisfaction with agency discharge was affected by the implementation of IPS, and most aspects of satisfaction with agency staff remained at comparable levels in the pre- and

post-BBA periods. However, there were some increases in dissatisfaction with certain interpersonal aspects of home health care (staff coming late and paying attention) and with the amount of skilled services received post-BBA.

The increases in dissatisfaction with staff arriving late and paying attention to patients may reflect the agency's increased emphasis on efficiency, which has resulted in more closely scheduled appointments that leave the staff less time for patient interactions. Disabled Medicare beneficiaries' dissatisfaction with not receiving enough skilled services may suggest the need to examine more closely whether their perceived need for skilled nursing and therapy services pertained to areas where more skilled services would be appropriately provided under the Medicare program or were for more chronic care outside the scope of the program's benefits.

*Despite the substantial cutbacks in Medicare home health utilization and expenditures, disabled beneficiaries' satisfaction with their home health services was largely unaffected.*

The disabled also were more dissatisfied post-BBA with the quality of life measure relating to satisfaction with current personal care arrangements. A substantial percentage, 28% (up from 16% in pre-BBA), felt their personal care needs were not being met. While these concerns may not be able to be accommodated within the Medicare home health benefit, they still may identify important perceived needs of the disabled population that were vocalized when aide and other home health services available through the Medicare program were contracted. It is also possible, however, that these decreases instead may reflect differences in the underlying populations pre- and post-BBA.

Comparison of the satisfaction of disabled Medicare home health users with that of aged home health users indicated that the disabled were a more critical, less satisfied group. Because they are younger, more disabled, and may be more assertive about articulating their dissatisfaction, they express significantly more dissatisfaction with various aspects of their care and with life in general. In addition, because they are, by definition, chronically disabled when most of their age group is functional, they may have greater expectations than the aged that receiving more care would be beneficial in increasing their functional level.

Satisfaction studies are always plagued by the inability to determine if beneficiaries' expectations are appropriate when dissatisfaction is found. This is especially true in this study as it examined these levels before and after a major contraction in services provided and focused on a service that was widely believed to be overprovided pre-BBA. However, despite the large decreases in the number of services provided, this study did not identify substantial increases in dissatisfaction with home health care during the IPS. If these problems were not evidenced during the more restrictive IPS, they are not likely to be of significant concern during the home health PPS now in place.

# I. INTRODUCTION

This study examines the impact of changes in Medicare home health policy mandated by the Balanced Budget Act (BBA) of 1997 on satisfaction with care for disabled Medicare beneficiaries. The BBA mandated major changes in home health payment requiring the implementation of a Prospective Payment System (PPS) and an Interim Payment System (IPS) prior to the implementation of PPS. It also contained changes in eligibility and coverage for home health services. These changes, while intended to reduce Medicare home health costs, run the risk of reducing beneficiaries' access to care and adversely affecting the quality of care provided. Of special concern are those Medicare beneficiaries who may need the most care. As an especially vulnerable group, disabled Medicare beneficiaries are an important group to study as insights gleaned can be used to help formulate national home health care policy for the disabled.

The study builds on a comprehensive study of the direct and indirect effects of the BBA changes funded by the Robert Wood Johnson Foundation (RWJF) through the Home Care Research Initiative at the Center for Home Care Policy and Research of the Visiting Nurse Service of New York and the Centers for Medicare and Medicaid Services (CMS). That study is examining BBA impacts on Medicare beneficiaries' access to care, costs, satisfaction, and quality of care before and after the BBA. This study looks specifically at disabled beneficiaries' satisfaction with home care provided and some aspects of their satisfaction with the quality of their lives four months after initiation of their home health care.

Other studies conducted under RWJF and CMS funding will examine different aspects of quality of care including whether there is an effect on home health users' functional or health status; increased use of hospitals, skilled nursing facilities, or emergency rooms (ERs); or a higher incidence of death.

Three types of analyses are conducted in this report. First, we compare beneficiary satisfaction and quality of life for disabled Medicare beneficiaries before and after implementation of the BBA. Second, we compare beneficiary satisfaction and quality of life for disabled Medicare beneficiaries and elderly Medicare beneficiaries after BBA implementation. Third, we examine the factors important in affecting the disabled's satisfaction and quality of life.

The basic design for the primary analysis question is quasi-experimental using data on Medicare home health beneficiaries from two periods, pre- and post-BBA implementation. Because Medicare policy was imposed nationwide a true control group is not available. Hypotheses regarding the possible effects of the BBA are tested by comparing cross-sectional analyses of the data in the pre- and post-BBA periods using

data available for the pre- and post-BBA periods for beneficiaries in a sample of agencies.

In the chapters that follow we discuss the study's background, its methodology and then present results for the three major research questions. The report concludes with a summary and conclusion.

## **II. BACKGROUND**

In this chapter we present background information on the population being studied--disabled Medicare beneficiaries. We then describe the home health policy changes that have come about as a result of the BBA of 1997 and other administrative compliance efforts. Following that, we review the research literature on the effects of these policy changes on Medicare beneficiaries and previous studies of satisfaction, highlighting factors important to take account of in our analysis.

### **The Disabled Medicare Population**

For this study, we define the disabled Medicare population as those eligible for Medicare because of disability and those eligible for Medicare because of end stage renal disease (ESRD) who are under 65 years of age. To qualify for Medicare as an ESRD beneficiary, a physician must certify the diagnosis, and the beneficiary must qualify for Old Age and Survivor Insurance benefits, Social Security benefits, or be the spouse or dependent of someone who meets either of these two requirements. In 1998, approximately 86,000 individuals under 65 years of age qualified because of ESRD, as compared to more than 4.9 million beneficiaries under 65 who qualified for Medicare because of disability (CMS 2001).

To be eligible for Medicare because of disability, an individual must have 24 months of cash benefits from the Social Security Disability Insurance (SSDI) program. To receive SSDI benefits, an individual must have worked for a certain period of time under Social Security and be unable to “engage in any substantial gainful activity” because of a physical or mental impairment. The impairment must be expected to last for at least one year or until death. Substantial gainful employment is defined as wages of \$700 per month in 2000<sup>1</sup> (SSA 2002).

Three categories of individuals can receive benefits: workers, disabled widows or widowers, and disabled adult children. Disabled widows and widowers must be 50-65 years of age and have a disability (as defined above) that started within seven years of the spouse’s death. Disabled adult children must be dependents of disabled, retired or diseased workers, 18 years of age or older, and have become disabled (also as defined

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<sup>1</sup> The definition of “substantial gainful employment” is different for those under 55 years of age and blind. They must be unable to engage in “substantial gainful activity” requiring skills or abilities comparable to those of any gainful activity in which they previously engaged with some regularity and over a substantial period of time. Their substantial gainful employment is defined as wages of \$1,170 per month in 2000.

above) before age 22. In December 2000, 85% were disabled workers, 3% disabled widows or widowers and 12% disabled adult children (SSA 2002).

Among disabled workers, the largest percentage are receiving SSDI for musculoskeletal system and connective tissue diseases (25%) followed by mental disorders (24%), circulatory problems (12%), cancer (10%) and nervous system and sense organ conditions (8%) (SSA 2002). These percentages would change slightly for those actually gaining Medicare eligibility, as diagnoses more prone to result in death during the two-year period of benefit payment before Medicare enrollment will be less represented. The diagnosis distribution is similar for the widows and widowers as for the workers, but the adult children are deemed eligible most commonly (60%) for mental retardation. The second most common diagnosis for adult children, accounting for an additional 17%, is mental disorders besides mental retardation (SSA 2002).

Data from 1998 Medicare Current Beneficiary Survey (MCBS) identifies the disabled as a more vulnerable group than the aged. Disabled Medicare beneficiaries more often report more than three limitations in activities of daily living (ADLs) than do the aged (21% versus 14%), with more upper extremity (55% versus 38%) and mobility (63% versus 45%) limitations reported. They also more frequently rate their health status as poor than do the aged, 28% as compared to 8% for aged Medicare beneficiaries. Their demographic and socioeconomic characteristics identify them among vulnerable groups more often than the aged. They have a larger percentage of racial minorities (32% versus 16%), and a larger percentage (74% versus 55%) with income under \$20,000 per year. In addition, they more often report that they have delayed care due to cost (21% versus 5%) (CMS 2002).

Medicare home health beneficiaries who are disabled have more visits per person served. Data for calendar year 1998 shows a larger number of visits per user for the disabled than for aged beneficiaries, 60 visits as compared to 50 visits (CMS 2001).

## **Policy Changes in Medicare Home Health Coverage and Reimbursement**

The utilization of home health care services under Medicare has undergone dramatic decreases in the last four years as Congress, CMS, and other government agencies have made concerted efforts to reform the way home health care under Medicare is delivered and paid for. This has involved both administrative and legislative activities, including the BBA of 1997.

During the early part of the last decade the use of Medicare home health care services rose dramatically. From 1988 to 1996, expenditures for services rose at an average rate of more than 30% per year (MedPAC 1999a). The rapid growth had a

number of causes. In 1989, a class action lawsuit (*Duggan vs. Bowen*<sup>2</sup>) resulted in a loosening of the interpretation of eligibility and coverage criteria, increasing substantially the number of beneficiaries who could be deemed eligible to receive home care services. In addition, the in-patient hospital PPS, changes in medical technology, and patient preferences also increased the demand for services (Komisar and Feder 1998; the Lewin Group 1998), while home care provider reimbursement methodologies encouraged the provision of more services with little consideration of cost (MedPAC 1999a). The number of home care agencies also grew substantially from 5,686 in 1989 to 10,498 in 1997, increasing the supply of available services (Committee on Ways and Means 1998; CMS 1999).

Concerns about the appropriateness of the increases in home health care use were voiced by CMS, the Office of Inspector General (OIG), and the Administration on Aging (AOA). In 1995 these three agencies jointly implemented Operation Restore Trust (ORT), an effort to identify fraud and abuse in home health agencies, nursing homes and medical equipment suppliers. Initially begun in five states, it was expanded to 18 states by 1998. ORT included audits, criminal investigations, surveys, inspections, and hotlines. In addition to authorizing grants to expand ORT, the Health Insurance Portability and Accountability Act of 1996 imposed civil monetary penalties on physicians who knowingly certified patients for Medicare home health who did not meet the eligibility requirements. In September 1997, CMS took the further step of implementing a six-month moratorium on the certification of new home health agencies and increasing cost report audits and medical reviews of claims.

While these measures focused on compliance initiatives within the home health industry, there was also a belief that much of the problem of the increasing expenditures rested with the relatively open-ended reimbursement system. The BBA of 1997 addressed this issue by legislating the implementation of a PPS to reimburse home health agencies. It also clarified some definitions relating to home health eligibility and coverage.

Eligibility for Medicare home health is limited to beneficiaries who are “homebound,” need “intermittent” skilled nursing or therapy services, and are under the care of a physician who prescribes their plan of care. A beneficiary needing only personal care does not qualify. Once a beneficiary is deemed eligible, Medicare pays for unlimited visits for “part-time or intermittent” care from any of the six home health service disciplines: skilled nursing, physical therapy, occupational therapy, speech language pathology, medical social services, and home health aide, with no copayment or deductible.

U.S. General Accounting Office (GAO 1996, 1998a) reports indicated wide variation in the interpretation of the terms “intermittent,” “part-time or intermittent,” and “homebound.” The BBA clarified the definition of “intermittent” for eligibility, specified the limits of

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<sup>2</sup> *Duggan vs. Bowen*, 691 F. Supp. 1487 (D.D.C. 1988).

“part-time or intermittent” care, and called for a Department of Health and Human Services (HHS) study of the criteria to determine if a beneficiary is “homebound.”<sup>3</sup> In addition, venipuncture (or blood drawing) was excluded as a basis for qualifying for home health services if it was the sole skilled service that the beneficiary required.

The legislation also mandated the use of an IPS to limit costs while the PPS was being developed. The IPS was phased in beginning in October 1997 with the start of each agency’s cost reporting period. Under IPS, agency reimbursement was constrained by both an aggregate per-visit cost limitation and by an aggregate per-beneficiary cost limit.

The IPS reduced the national per-visit cost limitations per discipline from 112% of the mean to 105% of the median per-visit costs for free-standing home health agencies. For old agencies (those with a 12-month cost reporting period ending in FY1994), the per-beneficiary limit was set at 98% of the blended (75% agency, 25% Census region) average cost per beneficiary based on cost reporting periods ending in FY 1994. For new agencies the per-beneficiary limitation was set at the national median of per-beneficiary limitations. The Omnibus Consolidated and Emergency Supplemental Appropriations Act (OCESAA) for FY 1999 raised the per-visit limitation from 105% to 106% of the median. It also raised the per-beneficiary limitation for some new agencies and old agencies whose per-beneficiary limitations were less than the national median. Per-beneficiary limitations for providers whose first cost reporting period began during FY 1999 were set at 75% of the median national per-beneficiary limitation.

Because of these limits and how they were applied, many analysts expressed concern that access to home care could be endangered, especially to those beneficiaries needing the most care (GAO 1998b; Komisar and Feder 1998; Smith, Rosenbaum, and Schwartz 1998; the Lewin Group 1998; Gage 1999; MedPAC 1999a).

## **Studies of the Impact of the BBA on Medicare Home Health Beneficiaries**

GAO (GAO 1999, 2000), OIG (OIG 1999, 2000a, and 2000b), the Medicare Payment Advisory Commission (MedPAC 1999b), and George Washington University (Smith, Maloy, and Hawkins 1999, 2000) have conducted studies of Medicare home health agencies and beneficiaries since the passage of BBA. These studies have demonstrated that substantial numbers of home care agencies have closed, beneficiary utilization has

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<sup>3</sup> The BBA defines “intermittent” skilled nursing as “skilled nursing care that is either provided or needed on fewer than 7 days each week, or less than 8 hours of each day for periods of 21 days or less (with extensions in exceptional circumstances...)” *Balanced Budget Act of 1997*, Sec. 4612(a). The HHS study did not yield a new definition of “homebound” that was considered superior to existing law and recommended that the existing policy be retained.

fallen, and the marketplace has changed dramatically. However, conclusions regarding whether beneficiary access to care has been affected have been mixed.

GAO looked at agency closure and beneficiary access and found closure of about 14% of home health agencies between October 1997 and January 1999. However, interviews in rural counties with substantial closures indicated few access problems (GAO 1999). They also conducted analysis on the use of 1998 experience data to set PPS payment rates and concluded the declines observed in use were for agencies and patients that used the most services in 1996, and that PPS could reverse these declines (GAO 2000).

OIG conducted three studies of BBA impacts, two of the studies focused on access and one looked at hospital readmissions and ER use after the initiation of home health care. The two access studies surveyed hospital discharge planners and examined claims data. Both studies found that more than 80% of discharge planners reported they could place all of their patients with home health agencies. Placement problems identified were both because of eligibility issues and the IPS (OIG 1999, 2000a). The third study compared hospital readmissions and ER use for those discharged from the hospital to home health care in 1997 with those in 1999. For the period of home care use plus 30 days they found decreases in readmission rates and ER use from pre-BBA to the post-BBA period (OIG 2000b).

MedPAC conducted a survey of home health agencies and a panel with 14 professionals (medical, legal and advocacy) from different geographical areas. They found the home health environment had changed considerably since BBA and that some agencies reported they avoid clients who they think will be costly. However, they also found it impossible to determine if the changes were appropriate (MedPAC 1999b).

George Washington University researchers conducted telephone interviews with 28 home health agencies and 41 hospital discharge planners in the same geographical areas. They concluded that agencies had altered their case mix and clinical treatment patterns making it more difficult for sicker and more vulnerable beneficiaries, especially those with diabetes, to receive care (Smith, Maloy, and Hawkins 1999). They also found that a little over 40% of discharge planners believed hospital readmissions for home health patients had increased (Smith, Maloy, and Hawkins 2000).

Descriptive analysis of CMS claims and eligibility data from calendar years 1996-1999 indicates a precipitous decline in utilization of Medicare home health care beginning in the fourth quarter of 1997, just at the time the implementation of the IPS began. The rate of Medicare users was 53.0 per 1,000 in the third quarter of 1997. By the fourth quarter of 1999 the rate of home health users during that quarter was down 38% to 32.7 per 1,000. The number of visits per user per quarter was also down 33% from 36.9 visits in the third

quarter of 1997, to 24.9 visits in the three months of the fourth quarter of 1999 (McCall et al. 2001).

## **Studies of Satisfaction**

Satisfaction is a significant and important component of the quality of care. Donabedian noted its pivotal role “in defining and assessing quality of care” (Donabedian 1988). Ware, Davies-Avery, and Stewart (1978) pointed out its importance as a measure of patient outcomes. Understanding satisfaction and the factors that contribute positively to it are of great interest as we move toward a more consumer-driven medical care system.

To measure satisfaction, it is necessary to administer a survey. Thus, answers can be affected by how the questions are phrased, who is asked and how the data are analyzed. Satisfaction levels can be impacted by the specific dimensions of care (e.g., out-of-pocket costs, availability, technical quality of care) targeted. If out-of-pocket costs, for example, are not specifically probed, the respondent may not account for these costs as they respond to a more general satisfaction question. The composition of the survey population can also affect responses. Health maintenance organization (HMO) beneficiaries who have limited out-of-pocket costs are likely to be more satisfied with the out-of-pocket cost dimension of satisfaction than fee-for-service beneficiaries (who have greater exposure to out-of-pocket costs). Both the analytical techniques used to analyze the data and the data available as controls in a multivariate analysis of satisfaction can affect the variables associated with satisfaction. A multivariate analysis that includes control variables for both age and disability, for example, may yield different results on the impact of age than one that includes only age as a control variable in the analysis.

Below we describe findings from the literature on beneficiary satisfaction with medical care. We first present overall findings, with a focus on previous studies of satisfaction with home care. Following that, we discuss the characteristics found to be related to beneficiary satisfaction in previous studies.

### **Impacts on Beneficiary Satisfaction**

The studies that have investigated patient satisfaction with medical care have fielded a wide variety of survey instruments and the data collected have been analyzed using a range of analytical techniques. While the data collection and analysis methodologies have not been consistent across studies, the overall results have been fairly uniform. Most studies report high levels of patient satisfaction with medical care. In the MCBS, beneficiaries typically express high levels of satisfaction. A 1995 analysis of MCBS data (Adler 1995) found that 89.8% of aged beneficiaries were satisfied or very satisfied with the overall quality of their care. For disabled beneficiaries the rate was somewhat lower, but still fairly high. More than 85% were satisfied or very satisfied with the quality of care

received. (See also Hulka et al. 1975; Patrick, Scrivens, and Charlton 1983; Abramowitz, Cote, and Berry 1987; Davis and O'Brien 1996).

Relatively little work has been done specifically in the area of patient satisfaction with home care, and many of the studies that have been done rely on fairly small sample sizes. Nevertheless, as with medical care, home care patients report high levels of satisfaction with the care received (Hall, Baird, and Elliston 1981; Braun, Goto, and Lenzer 1987; Laferriere 1993; OIG 1995).

Results are available from two demonstrations that have looked directly at how an individual's satisfaction and quality of life are impacted by changes in the amount of home health care received. The most recent of these is the CMS Per-Episode Home Health Prospective Payment (PPS) Demonstration. Findings from this demonstration are of particular interest since its data provide satisfaction measures for home care beneficiaries in the pre-BBA period for our analysis.

In their evaluation of CMS's Per-Episode Home Health PPS Demonstration, Mathematica Policy Research (MPR) analyzed beneficiary satisfaction with home health in the group of beneficiaries receiving care from HHAs receiving a PPS payment as compared to a group of beneficiaries receiving care from home health agencies (HHAs) receiving regular Medicare reimbursement. Data for the study are from a telephone survey administered four months after home health admission. Overall, home health prospective payment affected neither general satisfaction nor beneficiary satisfaction with "technical care," and resulted in some small decreases in satisfaction with "interpersonal care" (Chen 2000).

While the percentage of patients who were satisfied were similar for the two groups, differences were found in the percentage of those most dissatisfied with some aspects of staff performance in providing interpersonal care. The percentage of patients of prospectively paid agencies who thought the staff rushed through work most or all of the time increased 2.1 percentage points relative to the control group mean of 4.3%. The percentage of the treatment group who believed that staff paid attention to the patient only some, little or none of the time was 3.0 percentage points higher than the control group mean of 4.7%. Also, the percentage of patients of prospectively paid agencies who disagreed with the statement that staff encouraged independence increased 3.6 percentage points relative to the control group mean of 7.6%.

An earlier demonstration, the National Long-Term Care Demonstration, commonly known as Channeling, offered clients comprehensive case management and expanded community-based long-term care services. This demonstration tested two models: the basic case management model, which combined case management with a small amount of direct service purchasing power; and the financial control model, which pooled funds from various sources and allowed case managers to authorize payment for a wide range

of personal care and other community services. Overall, both Channeling models were found to be associated with increased levels of client satisfaction (Kemper 1988).

Using data from an in-person survey at 6 and 12 months, the evaluation of the Channeling demonstration found statistically significant increases in clients' confidence in receipt of care and satisfaction with service arrangements under both models at both time periods (Applebaum et al. 1988). For overall life satisfaction, small positive effects were found for both models at 6 months and under the financial control model at 12 months. Of note, much of the increase in life satisfaction occurred among proxy respondents, who were often informal caregivers.

### **Characteristics Related to Satisfaction**

While patients tend to report high levels of satisfaction with their medical care, there is limited consensus about which factors explain satisfaction. It does appear, however, that at least three characteristics are generally related to patient satisfaction: patient age, disability status, and perceived health status. The effects on patient satisfaction of gender, race, income, education, marital status, family size, and geographic location are less clear. The research also is unclear on the question of whether satisfaction data are affected by the use of proxy survey respondents. Each of these factors is discussed briefly below, beginning with the three characteristics for which the results from the previous research are most uniform.

Patient Age. Many studies have examined the relationship between a range of socioeconomic characteristics and satisfaction. Patient age is the sociodemographic characteristic most consistently related to patient satisfaction. In general, older patients tend to be more satisfied with their care than younger patients (Linn and Greenfield 1982; Aday, Fleming, and Andersen 1984; Cleary and McNeil 1988; Aharony and Strasser 1993; Hall and Dornan 1990).

Disability Status. Several studies suggest that the patient's disability status may affect ratings of satisfaction. In their study of the relationship between disability and patient satisfaction with primary care physicians, Patrick, Scrivens, and Charlton (1983) found that patients were satisfied with most aspects of their care. This held true for both the disabled and the non-disabled patients in the sample. However, they found that higher levels of disability were associated with higher levels of dissatisfaction with medical care and that patients who had experienced an "adverse life event" within the last year were more likely to be dissatisfied with care. Rosenbach, Adamache, and Khandker (1995) found that disabled Medicare beneficiaries tended to be less satisfied than the elderly. In a study of satisfaction with ambulatory care among male Veterans Affairs (VA) patients, Linn, Linn, and Stein (1982) reached a similar conclusion: patients who were less severely disabled tended to be more satisfied.

In their study of Medicaid home care users (both severely disabled and frail elders) in Hawaii, Braun, Goto, and Lenzer (1987) found that the younger patients were least satisfied. The authors argue that this difference can be explained by the cause of disability of the different age groups. The younger patients typically were recently disabled (e.g., due to accidents), while the older patients suffered from chronic, disabling conditions. The authors suggest that the older patients may accept their disabilities more easily than the younger patients, which could affect satisfaction.

Health Status. Researchers also have investigated the relationship between health status and satisfaction. In general, it appears that poorer health status is associated with lower rates of satisfaction. Linn and Greenfield (1982) found that patient satisfaction is sensitive to the patient's current assessment of health status. Rosenbach, Adamache, and Khandker (1995), in a study of Medicare beneficiaries, found that satisfaction tended to decrease as self-reported health status declined. Based on a review of the literature, Cleary and McNeil (1988) noted that the patient's health status prior to receiving treatment may be an important factor in determining patient satisfaction. The majority of the studies they reviewed indicated that better pre-existing health status is associated with positive satisfaction ratings of the care provided.

Gender. A number of studies have investigated whether the patient's gender is related to satisfaction, and many have concluded that female patients tend to be more satisfied than male patients (Aday and Andersen 1975; Hulka et al. 1975; Ware, Davies-Avery, and Stewart 1978; Aday, Fleming, and Anderson 1984; Cleary and McNeil 1988; Aharony and Strasser 1993). According to other studies, however, the patient's gender does not affect satisfaction (Linn and Greenfield 1982; Hall and Dornan 1990), and at least one study found that women were less satisfied than men with medical care (Shortell et al. 1977).

Race. The effect of race on patient satisfaction also is uncertain. Some have found that minorities tend to be less satisfied with their medical care than Whites (Aday and Andersen 1975; Hulka et al. 1975; Aday, Fleming, and Anderson 1984; Rosenbach, Adamache, and Khandker 1995). However, Linn and Greenfield (1982) found the opposite to be true, while Ware, Davies-Avery, and Stewart (1978) and Hall and Dornan (1990), in their reviews of the satisfaction literature, concluded that there is no relationship between patient satisfaction and race.

Income and Education Level. Similarly, researchers have found mixed results regarding the relationship between satisfaction and income and education level. Ware, Davies-Avery, and Stewart (1978) concluded that people with lower incomes tend to be less satisfied, and Rosenbach, Adamache, and Khandker (1995) reached a similar conclusion in their study of Medicare beneficiaries. However, Carlson et al. (2000) found

that HMO enrollees with higher incomes tended to be more dissatisfied with their HMOs,<sup>4</sup> and Hall and Dornan (1990) found no relationship between income and satisfaction. In terms of education level, Shortell et al. (1977), Hall and Dornan (1990), and Carlson et al. (2000) all concluded that less education is correlated with greater satisfaction. Ware, Davies-Avery, and Stewart (1978) found the opposite to be true: less educated people tend to be less satisfied with medical care.

Marital Status and Family Size. Marital status and family size may or may not be related to patient satisfaction. Hall and Dornan (1990) found that married people tend to be more satisfied with their care, but Ware, Davies-Avery, and Stewart (1978) concluded that marital status does not affect satisfaction. Several studies have looked at family size, and, again, the results are mixed. Patients from larger families may tend to be less satisfied (Shortell et al. 1977; Ware, Davies-Avery, and Stewart 1978), or family size may have no relationship at all with satisfaction (Hall and Dornan 1990). While Shortell et al.'s definition of family size was restricted to individuals residing at the same residence, the other two studies which synthesize the literature did not specify a definition.

Geographic Location. In their 1995 analysis of MCBS data Rosenbach, Adamache, and Khandker controlled for the beneficiary's geographic location. The control variables were census region as well as urban/rural location. They found no systematic relationship between a Medicare beneficiary's geographic location and satisfaction.

Proxy Responses. The person who responds to the survey (whether this is the patient or a proxy for the patient) may have an effect on the level of satisfaction. The evaluators of the National Long-Term Care Channeling Demonstration found that proxy respondents tended to report higher levels of patient satisfaction than the patients themselves did (Applebaum et al. 1988; Kemper 1988). However, in a very small study of home care users, Bear, Sauer, and Norton (1999) found no difference in satisfaction between proxy respondents reporting on the patient's satisfaction and patient respondents themselves.

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<sup>4</sup> The results did not hold for enrollees who had been with their HMO for five or more years. In this case, people with lower incomes were less satisfied than those with higher incomes (Carlson et al. 2000).

### **III. METHODOLOGY**

In this chapter, we describe the data sources, the specifications of the dependent variables and independent variables used in the study, and the methodology used in the analysis.

#### **Data Sources**

The major data sources for the analysis are two surveys of Medicare beneficiaries using home health services, one conducted in 2000 by RoperASW and Laguna Research Associates (LRA), which provides data on the post-BBA period, and one conducted in 1997-1998 by MPR, which provides pre-BBA data. Other data sources include information on beneficiaries, their agencies, and their communities that are used as control variables in the analysis. This report uses the data on the pre- and post-BBA disabled beneficiaries and the post-BBA aged beneficiaries.

#### **Beneficiary Survey**

The post-BBA beneficiary survey, conducted from July 2000 through January 2001, was a telephone survey of 1,722 Medicare beneficiaries using home health services in 26 home health agencies. Interviews were conducted 120 days after their home health admission. Interviews were conducted with both those still in home health care and those who had been discharged from care. This post-BBA survey included essentially the same questions<sup>5</sup> as the one conducted by MPR with 2,699 Medicare beneficiaries over the period from May 1997 to April 1998 as part of the CMS Per-Episode Home Health PPS Demonstration.<sup>6</sup> Beneficiaries were interviewed 120 days after admission because the CMS PPS Demonstration reimbursed agencies on a 120-day episode of care. We used the same time period to replicate its methodology. For the pre-BBA period, this analysis includes 1,224 Medicare beneficiaries admitted to agencies in the control group of the CMS demonstration (i.e., those who received home health from agencies who were receiving regular Medicare reimbursement as compared to a PPS payment). The survey questions assess: (1) satisfaction with the care delivered by the home health agency (HHA) and with their life quality; (2) health and functional status; and (3) use of non-Medicare home health services. A detailed summary of the survey questions is provided in Appendix 1.

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<sup>5</sup> Additional questions were added for non-elderly beneficiaries regarding their employment history, anticipations concerning return to work and whether they will need transportation or other accommodations.

<sup>6</sup> Agencies in the CMS Per-Episode Home Health PPS Demonstration were not subject to the IPS.

The original intent was to conduct the later survey with the same 41 home health agencies that participated as the control group in the CMS Per-Episode PPS Demonstration. Unfortunately, nine of these home health agencies were no longer in business, 14 of the original home health agencies refused to participate, one agency had allowed its Medicare number to lapse, and two did not respond to repeated contact attempts. One agency agreed to participate but did not submit any useable data. Our final database in the 2000 survey contained 26 home health agencies. They were home health agencies that had participated in the earlier PPS Demonstration or home health agencies that were selected as replacements for those agencies that were not available or refused participation. The criteria for replacement of home health agencies not willing or able to participate in the 2000 survey are given in Appendix 2. Of the 26 agencies in the post-BBA survey, 12 were replacement agencies. More agencies were not included because of difficulties in gaining agency participation.

The sample selection process was also designed to replicate, to the extent possible, that employed in the CMS Per-Episode Home Health Demonstration. In the pre-BBA period, the sampling frame was constructed from claims data and lists of new Medicare admissions provided by the agencies. However, because claims data were not available to this study on a timely basis we relied solely on lists from the agencies for the sampling frame.

The sample design in both periods was based on population proportionate to size (PPS) sampling. A target number of completed interviews was developed for each agency. The number was divided over the fielding period yielding a sampling proportion. Because we wanted to over-sample non-elderly beneficiaries in the post-BBA period to increase their numbers, any Medicare beneficiary under age 65 not included in the random sample was added to the post-BBA sample.

As a result of heightened privacy concerns by the agencies in the post-BBA period, an additional step was included. Postcards were sent by the agencies to the randomly selected Medicare home health users and those who responded that they wished not to be contacted were removed from the study.<sup>7</sup> The final response rate was 66% overall in the post-BBA period. The aged population had a response rate of 64% in the post-BBA period and the disabled population had a rate of 72%. MPR reported a completion rate in the pre-BBA period of 90%. For a more complete description of the post-BBA survey design and implementation see "Telephone Survey of Medicare Home Health Beneficiaries" (RoperASW 2001). For a description of the pre-BBA survey see "Documentation for Survey Data Files Used in the Analysis of the Home Health Prospective Payment Demonstration" (Zambrowski and Cheh 2000).

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<sup>7</sup> One agency required a more stringent level of consent requiring the Medicare beneficiary to return the postcard agreeing to participate in the study before they could be included.

There are several reasons for lower participation of agencies and beneficiaries in the post-BBA period. Agency cooperation was assured in the pre-BBA study since agencies had volunteered their participation and were being paid for it. The post-BBA survey did not compensate the agencies at a time when their resources were more strained, which adversely affected participation. Displeasure with the Federal Government, which was one of our study's funders, also contributed to problems securing participation. In addition, during the period since the pre-BBA survey was conducted, client privacy issues had been heightened among medical care providers and Medicare beneficiaries. This resulted in the use of a less direct method of approaching beneficiaries for their participation as well as lowered participation rates when beneficiaries were approached. Although we cannot be sure that bias does not exist, it is unclear in which direction any bias would go. The relatively lower reported participation rates may have resulted in respondents who were more satisfied because satisfied beneficiaries might be more willing to talk to the interviewers. On the other hand, individuals who are less satisfied may be eager to participate so they can have the opportunity to voice their concerns about their experiences.

### **Other Data Sources**

For each beneficiary completing a survey in the post-BBA period, data were secured from the Medicare beneficiary eligibility files, the Medicare Provider of Service (POS) and Cost Report files, the Area Resource File (ARF), Medicare claims files, and Outcome and Assessment Information Set (OASIS) data files. The pre-BBA period data come from data files created as part of the CMS Per-Episode Home Health PPS Demonstration.

### **Issues in Construction of the Data Files**

The post-BBA period interview sample was selected from lists of new Medicare admissions provided by the participating agencies. However, when attempting to link survey respondent data to eligibility and OASIS data, some of the observations did not match. Fifty-seven survey cases did not match with the CMS Medicare beneficiary eligibility files, indicating that they did not have the correct Medicare identification number, the Medicare eligibility files were incomplete, or they were not Medicare eligible. Since the latter was the most likely explanation given the possibilities of errors in an agency-prepared list, these beneficiaries were omitted from the study resulting in an analysis file with 1,665 cases in the post-BBA period (425 disabled, 1,240 aged) and 1,224 cases in the pre-BBA period (106 disabled, 1,118 aged). Of these, 159 survey beneficiaries did not match with OASIS data. Review of OASIS data files indicated they were of relatively low quality and therefore it was likely that these matches were not found because of the poor quality of these newly reported data. Thus, these survey respondents are retained in the sample. Missing data in the multivariate analysis due to these linkage problems was handled by specifying a missing category, including the mean value of the

independent variable or otherwise imputing the missing value. Individual items missing in all the data sources were handled in a similar manner.

## **Analysis Methodology**

### **Research Questions**

The analysis of the three main research questions rests on the descriptive analysis and the estimation of logit models. The following research questions are addressed:

1. Do disabled Medicare beneficiaries differ in their levels of satisfaction and quality of life before and after the BBA?
2. Do disabled Medicare beneficiaries differ from elderly Medicare beneficiaries in their levels of satisfaction and quality of life following implementation of the BBA?
3. Among disabled Medicare beneficiaries, what characteristics (patient demographics, services received, informal care, health/functional status, area characteristics, and agency characteristics) are related to an individual's level of satisfaction and quality of life?

### **Variable Specification**

#### ***Dependent Variables***

Two different types of measures of satisfaction are examined in this study: those relating to satisfaction with the Medicare home health services received and those relating to the beneficiary's assessment of his or her life quality at the time of the survey. The specific variables examined in each of the categories and their definitions from the survey are provided in Figure 3-1.

The first set of variables is divided into three groups: satisfaction with overall quality of the agency's care, satisfaction with the discharge experience, and satisfaction with the agency staff. The agency staff satisfaction measures are further broken down into satisfaction with the interpersonal relationship with the staff in general, satisfaction with the technical quality of aide care, and satisfaction with the technical quality of nurse and therapist care.

Also examined are two measures related to beneficiaries' quality of life. While these measures' ties to home health care service reductions are less direct, they may document changes resulting from reduced availability of home health services. On the other hand,

they also may represent underlying differences in the populations. These measures are satisfaction with life and satisfaction with current personal care arrangements.

These 18 dependent variables were used in the CMS Prospective Payment Research Demonstration and the MPR evaluation of that demonstration. Our pre-BBA data are from that evaluation, and the methodology employed follows the methodology used in that analysis and is employed in the broader RWJF evaluation.

### ***Independent Variables***

The multivariate analysis includes five types of independent variables: beneficiary demographic and social characteristics, beneficiary health and functional status characteristics, availability of informal care, agency characteristics, and community characteristics. Figure 3-2 provides a list of the variables that were specified and their definitions. Because of the small sample size, the number of independent variables that could be used in the multivariate models was limited. Variables were selected from a broader group after review of the descriptive data and after consideration of findings from previous research on satisfaction and the comparability of data in the pre- and post-BBA periods. Where data on a given characteristic were available from multiple sources, we selected the one that was most accurate and complete, and in some cases, augmented missing information from another data source. The data source for each variable is noted in Figure 3-2.

<b>FIGURE 3-1. Dependent Variables</b>	
<b>Overall Satisfaction</b>	Satisfied with Care Received from Agency Would Recommend Agency to Friend or Family
<b>Discharge</b>	Discharged Too Soon Needed Home Services After Home Health Discharge--Not Available and a Big Problem
<b>Agency Staff</b>	<i>All Staff</i> Did Not Arrive Late Did Not Rush Through Work Encouraged Independence Provided Reassurance and Emotional Support Paid Attention to Patient  <i>Aides</i> Completed All Work Did Not Come Often Enough  <i>Nurses and Therapists</i> Did Not Come Often Enough Were Careful and Thorough in Examination and Treatment Visits Long Enough All of the Time Gave Clear Explanations of Medical Condition and Treatment Provided Excellent Teaching About Care
<b>Quality of Life</b>	Satisfied with Life Satisfied with Present Personal Care Arrangements

An individual's satisfaction may depend on many factors. Previous studies have examined a number of demographic characteristics hypothesized to be related to satisfaction (see Chapter II). Age and disability are two factors consistently found to affect patient satisfaction. Older patients tend to be more satisfied with their care than younger patients, while disabled patients tend to be less satisfied (or more dissatisfied) with their care. The analysis comparing disabled and elderly Medicare beneficiaries includes a categorical variable based on age at home health admission: under age 65 (i.e., disabled), 65-74, 75-84, and 85 and older. Age was not included in the models that are restricted to disabled Medicare beneficiaries. Included are several other demographic characteristics that previous research has shown had an effect on satisfaction, however, the direction of these effects has not always been consistent. Variables falling into this category include gender (male), race (non-White), income level (\$20,000 and over, state Medicaid buy-in), marital status (married), and whether the person responding to the survey is the patient or a proxy respondent.

As discussed in Chapter II, previous studies consistently have found a relationship between health status and satisfaction exists; poorer health status appears to be associated with lower rates of satisfaction. Our models include three types of health and functional status variables. The first set of variables are measures of prior Medicare use--whether the beneficiary was in the hospital or a SNF in the two weeks prior to home health

admission and whether he or she had any in-patient admissions six months before receiving home health--both of which indicate recent illness or accident. The second set are dummy variables indicating a diagnosis for three medical conditions: diabetes, cerebrovascular disease, and cancer. The final set are measures of a beneficiary's inability to perform ADLs. The specific variables are having a limitation in toileting and the number of ADLs, out of a possible five, in which the beneficiary had limitations.

The models also include an independent variable for an important agency characteristic. For-profit agencies are hypothesized to be more reactive to the new financial pressures than non-profit or public agencies, both because they may be able to react more quickly to reduced revenues and because they had higher pre-BBA use than did other ownership categories (GAO 2000; Lewin 1998; Franco and Leon 2000; Goldberg and Schmitz 1994; Leon, Neuman, and Parente 1997). Thus, beneficiaries receiving care from for-profit agencies may be less satisfied with the care received.

Finally, the models include two general measures of the beneficiary's community characteristics--whether the beneficiary resides in an urban location and the state in which the HHA is based--and a measure of the community's historical Medicare reimbursement. These variables are used primarily to control for changes in the pre- and post-BBA populations due to the loss of participation of the originally targeted agencies.

<b>FIGURE 3-2. Potential Independent Variables</b>	
<b>Demographic Information and Eligibility</b>	<p><i>Eligibility File</i></p> <ul style="list-style-type: none"> <li>*Age</li> <li>*Gender</li> <li>*Race</li> <li>*Has Medicaid buy-in</li> <li>Either in HMO or Medicare Secondary Payer at some time in six months prior to home health admission</li> </ul> <p><i>Survey</i></p> <ul style="list-style-type: none"> <li>*Marital status</li> <li>*Income</li> <li>Education</li> <li>*Patient was survey respondent</li> </ul>

**FIGURE 3-2. Potential Independent Variables**

<p><b>Health and Functional Status</b></p>	<p><i>Claims Files</i></p> <ul style="list-style-type: none"> <li>*Whether beneficiary was in the hospital during two weeks prior to home health admission</li> <li>Length of in-patient stay ending in two weeks prior to home health admission</li> <li>*Whether beneficiary was in a SNF during two weeks prior to home health admission</li> <li>*Number of hospitalizations during six months preceding home health admission</li> <li>Number of SNF admissions during six months preceding home health admission</li> <li>*Diagnosis at time of home health admission             <ul style="list-style-type: none"> <li>*Diagnosis of diabetes</li> <li>*Diagnosis of cerebrovascular disease</li> <li>Diagnosis of skin ulcers</li> <li>*Diagnosis of cancer</li> </ul> </li> </ul> <p><i>OASIS Files</i></p> <ul style="list-style-type: none"> <li>*Functional limitations (bathing, eating, dressing, toileting, transferring)</li> <li>*Diagnosis at time of home health admission             <ul style="list-style-type: none"> <li>*Diagnosis of diabetes</li> <li>*Diagnosis of cerebrovascular disease</li> <li>Diagnosis of skin ulcers</li> <li>*Diagnosis of cancer</li> </ul> </li> </ul> <p><i>Survey</i></p> <ul style="list-style-type: none"> <li>*Received non-Medicare paid help during month preceding home health admission</li> <li>*Received unpaid help from family or friends during month preceding home health admission</li> <li>Received unpaid help from family or friends living in home during month preceding home health admission</li> <li>Whether beneficiary was in the hospital prior to home health admission</li> <li>Self-reported health status</li> </ul>
<p><b>Agency Characteristics</b></p>	<p><i>Provider of Service (POS) Files</i></p> <ul style="list-style-type: none"> <li>Urban or rural</li> <li>*For-profit or non-profit</li> <li>Hospital-based or freestanding</li> </ul> <p><i>Cost Report</i></p> <ul style="list-style-type: none"> <li>Agency size</li> </ul>

FIGURE 3-2. Potential Independent Variables	
<b>Community Characteristics</b>	<p><i>Area Resource File (ARF)</i></p> <ul style="list-style-type: none"> <li>*Urban or rural</li> <li>Census region</li> <li>*State</li> <li>Managed care penetration</li> <li>Nursing home beds per 100 persons age 65 or older (1991)</li> <li>Hospital occupancy rate</li> <li>Physicians per 10,000 residents</li> <li>*Medicare reimbursement per beneficiary</li> </ul> <p><i>POS Files and ARF</i></p> <ul style="list-style-type: none"> <li>Nursing home beds per 100 persons age 65 or older (1997)</li> <li>Full-time Medicare home health agency employees per 100 persons age 65 or older</li> </ul> <p><i>Other Sources</i></p> <ul style="list-style-type: none"> <li>Various specifications of baseline state Medicare and Medicaid expenditures (e.g., per capita, per beneficiary, per user)</li> </ul>
* Indicates used in multivariate analysis	

Also included in the models are two measures of the availability of informal care. Beneficiaries who received non-Medicare paid help in the month prior to home health admission may tend to be more critical of the home health care received and thus less satisfied. On the other hand, beneficiaries receiving unpaid help from family and friends in the month prior to admission may be pleased with the professional care available, and thus more satisfied.

### Basic Analytical Strategy

The analysis is composed of both descriptive and multivariate analysis. The multivariate approach estimates the following model:

$$\text{Prob}(Y_i = 1) = \frac{1}{1 + \exp^{(a + X_i\beta + Z_j\alpha + D_k\theta + T\sigma)}}$$

- where:
- $Y_i$  is the patient's satisfaction or quality of life
  - $X_i$  is a vector of patient demographic, eligibility, informal care, and health and functional status characteristics
  - $Z_j$  is a vector of community characteristics
  - $D_k$  is a vector of agency characteristics
  - $T$  is a time variable, which equals 0 if the patient started care before BBA; 1 otherwise.

The statistical test on each of the coefficients measures whether a given variable had an effect on the satisfaction or quality of life measure.

Question #1 examines the statistical test on the coefficient  $\sigma$  of the variable that measures whether the time period of care (before or after the BBA) had an effect on the percentage of beneficiaries having a particular satisfaction or quality of life measure. The regression-adjusted effect, measured in percentage terms, is estimated from the logistic regression. Using the model parameters, the difference in the percentage having a particular satisfaction or quality of life measure is estimated by calculating predicted probabilities for all sample members first as if they were in the pre-BBA period and then as if they were in the post-BBA period. The mean of the difference between these two predicted probabilities across the sample members is the estimated difference in the post-BBA period holding constant all the control variables in the model. This methodology assumes that the effects of the independent variables on satisfaction and quality of life are constant pre- and post-BBA.

Question #2 examines the coefficient on the independent variable *age under 65*, which is among the variables in the vector of patient characteristics  $X_i$ . As above, the percentage effect of being disabled as compared to aged is estimated as described in Question #1 above.

Question #3 examines the significance of each of the patient characteristics (all of the variables in vector  $X_i$ ), community characteristics (all of the variables in vector  $Z_j$ ) and agency characteristics (all of the variables in vector  $D_k$ ). If a significant effect exists, the odds ratio shows how much higher or lower the odds are of having a particular satisfaction or quality of life measure for a particular independent variable, controlling for the other independent variables in the model.

Throughout this report differences found at  $p \leq 0.10$  are considered to be significant due to the difficulties in detecting differences at a lower significance level because of the small sample size.

### **Special Considerations With Respect to the Design Effects**

The survey includes a complex survey design that includes clustering, as the observations are concentrated within the 26 agencies that participated in the 2000 survey and the 41 agencies in the 1997-1998 survey. The variances of the impact estimates calculated in standard statistical software packages such as SAS assume the data are drawn from a simple random sample in which the observations are independent, identically distributed and selected with equal probability. Thus, variance estimates derived from these packages underestimate the true variance, and generate smaller confidence intervals and anticonservative hypothesis testing (Cohen 1997).

In addition, the sampling of beneficiaries within agencies was done using probabilities proportionate to size approach, so that the number of cases selected from a given agency is proportional to the total number of cases that the agency contributed to the

overall sample. Analyses were conducted both unweighted and using weights which equalize the contribution of each agency.

In the main regression analysis, the agencies are given equal representation. The BBA's main effect was through altering payments to agencies so agencies are a primary unit of interest. In addition, weighting the data in this manner prevents the results from being dominated by the satisfaction levels of the largest agencies. On the other hand, a drawback of weighting the agencies equally is that smaller agencies that may have atypical results will receive a large weight. Thus, sensitivity analysis is conducted which weights the individual respondents equally. If the results are similar in both analyses, there can be more confidence in the findings.

The weights used, constructed by RoperASW, were trimmed "agency-equal" weights. For each agency an initial weight was calculated:

where:  $w_i = \frac{1/n_i}{k/n}$

$n_i$  is the number of interviews in the agency;  
 $k$  is the number of agencies; and  
 $n$  is the total number of interviews.

Then the weights were trimmed to pull in the tails of the distribution to lessen the design effect from the disparate agency sizes (RoperASW 2001). Stata was used to analyze the data taking account of the weighting and the clustered survey design.

## **IV. IMPACT OF THE BBA ON THE SATISFACTION AND QUALITY OF LIFE OF DISABLED MEDICARE BENEFICIARIES**

In this chapter, we explore the impact of the BBA on disabled Medicare beneficiaries' satisfaction with the home health care they received and their quality of life. We begin by comparing the characteristics and home health utilization experience of the pre- and post-BBA disabled samples. We then examine differences in their satisfaction responses and analyze these differences controlling for the characteristics of the two samples. We conclude the chapter by examining whether the results change if a different weighting scheme is used in the analysis of the data.

Disabled Medicare beneficiaries are a particularly vulnerable group who have more limitations in their daily living activities and are more often poor or a racial minority. Among those using Medicare home health they tend to use more visits than other Medicare beneficiaries. Because of their unique needs and concerns they are an important group to isolate for in-depth study.

### **Comparison of the Pre- and Post-BBA Disabled Samples**

#### **Characteristics**

Table 4-1 compares the characteristics of the pre- and post-BBA samples on the independent variables that are used in the multivariate analysis. It should be noted that the sample size in the post period is much larger than in the pre- period because all disabled beneficiaries were sampled to increase the sample size for the analysis reported in Chapter V. With respect to the demographic variables, the groups were not significantly different except for their racial composition and their reported income. The post-BBA group had fewer non-Whites (23% versus 37%), and a higher reported income than the group in the pre-BBA period. Post-BBA, 15% reported income of \$20,000 and over, but only 6% had incomes of \$20,000 and over pre-BBA. There was not a significant difference between the two time periods in the percentage who responded to the survey themselves rather than through a proxy. There were also no significant differences in their use of paid help or unpaid help in the month before their home health admission.

<b>TABLE 4-1. Characteristics of Disabled Medicare Beneficiaries Admitted to Study Home Health Agencies, Pre- and Post-BBA</b>		
	<b>Pre-</b>	<b>Post-</b>
<b>Number</b>	106	425
<b>Demographic</b>		
Male	43.93	44.22
Non-White	36.65	22.75**
State Medicaid buy-in	55.85	64.55
Married	25.09	30.44
Income \$20,000 and over	6.42	15.18***
Patient was survey respondent	74.52	69.99
<b>Availability of Informal Care at Admission</b>		
Non-Medicare paid help in month prior to admission	13.64	20.39
Unpaid help from family/friends in month prior to admission	66.85	66.77
<b>Prior Medicare Use</b>		
In hospital or SNF 2 weeks prior to home health admission	51.12	64.95**
In-patient admissions 6 months prior to admission	1.35	1.54
<b>Diagnoses at Admission</b>		
Diabetes	19.48	15.63
Cerebrovascular disease	5.59	6.09
Cancer	3.23	2.99
<b>Functional Limitations at Admission</b>		
Toileting	32.45	31.22
Number of ADLs	2.29	2.55
<b>Agency Characteristics</b>		
Agency for-profit	63.40	28.97***
<b>Community</b>		
General		
Urban	83.86	93.76**
State		
California	21.11	35.91***
Florida	6.13	6.48
Illinois	25.62	21.77
Massachusetts	2.61	11.45***
Texas	44.53	24.39***
Historical Medical Use		
County Pt. A/B reimbursement per beneficiary (1000s)	3.40	3.31*
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting.</p> <p>* Significantly different from pre-BBA at <math>p \leq 0.10</math>, two-tailed test.</p>		

Post-BBA disabled beneficiaries more often (65% versus 51%) entered home health care following a hospitalization. The incidence of three selected home health diagnoses (diabetes, cerebrovascular disease, and cancer) and the average number of ADLs reported were not significantly different in the two time periods. Post-BBA, beneficiaries were less often seen by for-profit agencies (29% versus 63%), which reflects not only the changes in the populations but also the effects of the necessity to use replacement agencies for agencies who went out of business or who refused to participate. There were also a larger percentage of respondents in urban communities, California, and Massachusetts and fewer in Texas, and the communities post-BBA had smaller average Medicare reimbursement per beneficiary.

## Utilization

Table 4-2 shows the utilization of home health services during the 120 days following the date of admission to home health care for the pre- and post-BBA samples. Consistent with our previous studies (McCall et al. 2001, 2002) and national data (CMS 2001), utilization decreased substantially. However, the pattern for the disabled was somewhat different from the overall reductions. Aide visits were a smaller percentage of pre-BBA home health utilization for the disabled and these were the services that experienced the largest cutbacks overall. The total number of visits during the 120 days after home health admission decreased 32% for the disabled samples. Skilled nursing visits decreased by 39% and aide visits by 54%. Relative value units (RVUs), a measure of relative service intensity,<sup>8</sup> and paid dollars both decreased by 28%. Reductions in service use are hypothesized to have an impact on patient satisfaction. The next section explores those relationships.

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<sup>8</sup> The relative value units (RVUs) for each discipline were developed from the FFY 2000 per-visit Metropolitan Statistical Area (MSA) and non-MSA limits for each discipline ("Medicare Program; Schedules of Per-Visit and Pre-Beneficiary Limitations on Home Health Agency Costs for Cost Reporting Periods Beginning On or After October 1, 1999 and Portions of Cost Reporting Periods Beginning Before October 1, 2000; Notice." HCFA-1060-NC. *Federal Register* 64(150), 42766-42789, Thursday, August 5, 1999). MSA and non-MSA limits were weighted by the proportion of the Medicare population in MSA and non-MSA areas (72% MSA and 28% non-MSA) and the RVUs were developed from the resulting per-visit discipline limits by dividing each discipline's per-visit limit by the per-visit limit of a skilled nursing visit.

<b>TABLE 4-2. Home Health Utilization of Disabled Beneficiaries During the 120 Days After Home Health Admission, Pre- and Post-BBA</b>				
	<b>Pre- (N=106)</b>	<b>Post- (N=425)</b>	<b>Difference</b>	<b>p-value</b>
Number of Visits	42.32	28.80	-13.52	0.022
Skilled Nursing	29.29	17.77	-11.52	0.021
Aide	7.47	3.42	-4.05	0.046
Other <sup>a</sup>	5.57	7.61	2.04	0.193
Number of RVUs <sup>b</sup>	39.27	28.25	-11.02	0.046
Paid Amount	3566.82	2559.62	-1007.20	0.060

SOURCES: CMS Home Health Standard Analytic Files and Per-Episode Home Health Prospective Payment Demonstration data.

NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting.

a. Other includes physical therapy, occupational therapy, speech language pathology, and medical social services.

b. The relative value units (RVUs) for each discipline were developed from the FFY 2000 per-visit limits for each discipline. Metropolitan Statistical Area (MSA) and non-MSA limits were weighted by the proportion of the Medicare population in MSA and non-MSA areas (72% MSA and 28% non-MSA) and the RVUs were developed from the resulting per-visit discipline limits by dividing each discipline's per-visit limit by the per-visit limit of a skilled nursing visit.

## **Descriptive Comparisons of the Satisfaction and Quality of Life Measures**

Table 4-3 compares satisfaction with various aspects of the home health experience and quality of life of the disabled pre- and post-BBA. Of the 18 measures examined, 14 showed more dissatisfaction in the post-BBA period, but only four of these differences were statistically significant. Two of the measures that were statistically significant concerned staff arriving late and rushing through work. Significantly fewer of the disabled answered that staff did not arrive late and that staff did not rush through work in the post-BBA period as compared to the pre-BBA period. The two quality of life measures were also significantly different between the pre- and post-BBA periods. Those satisfied with life and with their present personal care arrangements decreased significantly. It should be noted that with larger sample sizes, some of the other ten satisfaction variables where the disabled expressed more dissatisfaction post-BBA might become significant.

<b>TABLE 4-3. Comparison of 18 Variables Measuring Satisfaction of Disabled Medicare Home Health Beneficiaries, Pre- and Post-BBA</b>					
	<b>N</b>	<b>Pre-</b>	<b>Post-</b>	<b>Differenc e</b>	<b>p- value</b>
<b>SATISFACTION</b>					
<b>Overall</b>					
Satisfaction with care received from agency	522	93.07	90.14	-2.93	0.426
Would recommend agency to friend or family	519	94.92	92.82	-2.10	0.479
<b>Discharge</b>					
Discharged too soon	423	31.36	24.82	-6.54	0.419
Needed home services after discharge--not available and a big problem	433	22.74	17.76	-4.98	0.426
<b>Agency Staff</b>					
<b>All Staff</b>					
Did not arrive late	523	86.40	77.55	-8.85	0.084
Did not rush through work	518	89.22	81.02	-8.20	0.058
Encouraged independence	488	30.00	36.61	6.61	0.239
Provided reassurance and emotional support	513	40.29	38.08	-2.21	0.705
Paid attention to patient	517	75.81	67.90	-7.91	0.197
<b>Aides</b>					
Completed all work	225	74.45	71.30	-3.15	0.741
Did not come often enough	226	7.14	11.18	4.04	0.479
<b>Nurses and Therapists</b>					
Did not come often enough	519	13.57	17.29	3.72	0.526
Were careful and thorough in examination and treatment	515	42.56	39.93	-2.63	0.618
Visits long enough all of the time	515	74.33	64.87	-9.46	0.128
Gave clear explanations of medical condition and treatment	515	63.30	58.20	-5.10	0.461
Provided excellent teaching about care	494	35.94	39.21	3.27	0.479
<b>QUALITY OF LIFE</b>					
Satisfied with life	497	55.20	44.66	-10.54	0.093
Satisfied with present personal care arrangements	502	84.35	69.98	-15.37	0.002
SOURCES: Surveys of Medicare home health care beneficiaries. NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.					

## Multivariate Analysis

The multivariate analysis estimates differences in responses to the satisfaction and quality of life questions between the pre- and post-BBA periods (Table 4-4). Note that for three of the dependent variables, observations and independent variables were dropped from the model because there was no variation in satisfaction responses for that variable.

Four dependent variables were significant ( $p < 0.10$ ): staff arriving late, staff rushing through work, nurses and therapists not coming often enough, and satisfaction with

personal care arrangements. All four significant dependent variables in the multivariate analysis were in the direction of less satisfaction post-BBA. Of the 14 variables not found to be significant, 11 were in the direction of lower satisfaction post-BBA.

<b>TABLE 4-4. Estimated Differences Between Pre- and Post-BBA Periods in General Satisfaction with Home Health Care Received, Satisfaction with Agency Staff, and Quality of Life for Disabled Medicare Beneficiaries</b>					
	<b>N</b>	<b>Pre-Mean</b>	<b>Difference</b>	<b>p-value</b>	<b>% Difference</b>
<b>SATISFACTION</b>					
<b>Overall</b>					
Satisfaction with care received from agency	481 a	93.07	-3.53	0.358	-3.79
Would recommend agency to friend or family	519	94.92	-2.87	0.303	-3.02
<b>Discharge</b>					
Discharged too soon	423	31.36	-5.70	0.387	-18.18
Needed home services after discharge--not available and a big problem	433	22.74	-5.93	0.342	-26.08
<b>Agency Staff</b>					
<b>All Staff</b>					
Did not arrive late	523	86.40	-13.19	0.005	-15.27
Did not rush through work	518	89.22	-12.35	0.013	-13.84
Encouraged independence	488	30.00	4.61	0.441	15.37
Provided reassurance and emotional support	513	40.29	-3.95	0.514	-9.80
Paid attention to patient	517	75.81	-8.95	0.149	-11.81
<b>Aides</b>					
Completed all work	214 b	74.45	-6.19	0.498	-8.31
Did not come often enough	207 a	7.14	7.33	0.312	102.66
<b>Nurses and Therapists</b>					
Did not come often enough	519	13.57	8.50	0.073	62.64
Were careful and thorough in examination and treatment	515	42.56	-9.15	0.126	-21.50
Visits long enough all of the time	515	74.33	-6.00	0.378	-8.07
Gave clear explanations of medical condition and treatment	515	63.30	-5.77	0.425	-9.12
Provided excellent teaching about care	494	35.94	-1.27	0.807	-3.53
<b>QUALITY OF LIFE</b>					
Satisfied with life	497	55.20	-7.28	0.265	-13.19
Satisfied with present personal care arrangements	502	84.35	-12.45	0.026	-14.76
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.</p> <p>a. Independent variables for cancer and MA and observations dropped because there was no variation in the satisfaction responses for those variables.</p> <p>b. Independent variable for MA and observations dropped because there was no variation in the satisfaction responses for that variable.</p>					

Those who responded that the staff did not arrive late decreased an estimated 13 percentage points from a pre-BBA satisfaction level of 86%. Those who believed that staff did not rush through work also decreased, 12 percentage points, from a pre-BBA level of 89%.

Beneficiaries who responded that nurses and therapists did not come often enough increased an estimated 9 percentage points post-BBA, from 14% pre-BBA to 23%. Beneficiaries who were satisfied with their present personal care arrangements also

decreased. The decrease was an estimated 12 percentage points from a pre-BBA level of 84%.

Three of the four significant results shown in the unadjusted data (Table 4-3) remain in the regression-adjusted results (Table 4-4), which control for demographic characteristics, availability of informal care, prior medical use, diagnoses, functional limitations, and agency and community characteristics. It should be noted in reviewing the detailed regression results shown in Chapter VI that only five of the 18 regressions are significant, therefore one would not expect too many changes from the descriptive to the multivariate results.

## **Sensitivity Analysis**

Table 4-5 compares results of the agency-equal analysis with those found when the agencies are weighted proportional to their size (individual-equal weights). Three of the four significant results found using the agency-equal weighting scheme were also found using the individual-equal weighting scheme. One of the significant results under agency-equal weighting was almost significant using the individual-equal weighting scheme. Significant results were also found for four additional dependent variables.

Specifically, significant results were found between the pre- and post-BBA period for fewer beneficiaries feeling the staff did not rush through work, more responding that nurses and therapists did not come often enough, and fewer indicating satisfaction with personal care arrangements. In addition, the decrease in the percentage believing that staff did not arrive late post-BBA was almost significant ( $p \leq 0.15$ ).

The individual-equal analysis also found significantly smaller percentages post-BBA satisfied overall with the care from the agency or willing to recommend the agency to a friend or family. A significant difference was also found post-BBA for decreases in the percentage of those believing that nurses and therapists were careful and thorough and that their visits were long enough all of the time.

In this individual-equal analysis more weight is given to larger agencies. Thus results suggest there are more specific measures on which there is dissatisfaction among the disabled post-BBA Medicare population when larger agencies are given more weight.

**TABLE 4-5. Estimated Differences Between Pre- and Post-BBA Periods in Satisfaction with Home Health Care for Disabled Medicare Beneficiaries, Agency-Equal and Individual-Equal Weights**

	N	Agency-Equal Weight <sup>a</sup>				Individual-Equal Weight <sup>b</sup>			
		Pre-Mean	Difference	p-value	% Difference	Pre-Mean	Difference	p-value	% Difference
<b>SATISFACTION</b>									
<b>Overall</b>									
Satisfaction with care received from agency	481 <sup>c</sup>	93.07	-3.53	0.358	-3.79	94.12	-5.86	0.081	-6.23
Would recommend agency to friend or family	519	94.92	-2.87	0.303	-3.02	95.24	-5.18	0.046	-5.44
<b>Discharge</b>									
Discharged too soon	423	31.36	-5.70	0.387	-18.18	28.38	-2.63	0.650	-9.27
Needed home services after discharge--not available and a big problem	433	22.74	-5.93	0.342	-26.08	24.66	-6.91	0.257	-28.02
<b>Agency Staff</b>									
<b>All Staff</b>									
Did not arrive late	523	86.40	-13.19	0.005	-15.27	84.31	-6.96	0.145	-8.26
Did not rush through work	518	89.22	-12.35	0.013	-13.84	89.11	-10.65	0.022	-11.95
Encouraged independence	488	30.00	4.61	0.441	15.37	29.47	3.84	0.509	13.03
Provided reassurance and emotional support	513	40.29	-3.95	0.514	-9.80	40.00	-3.32	0.538	-8.30
Paid attention to patient	517	75.81	-8.95	0.149	-11.81	75.25	-8.28	0.206	-11.00
<b>Aides</b>									
Completed all work	214 <sup>d</sup>	74.45	-6.19	0.498	-8.31	76.47	-6.61	0.459	-8.64
Did not come often enough	207 <sup>e</sup>	7.14	7.33	0.312	102.66	5.88	8.14	0.254	138.44
<b>Nurses and Therapists</b>									
Did not come often enough	519	13.57	8.50	0.073	62.64	11.54	9.11	0.059	78.94
Were careful and thorough in examination and treatment	515	42.56	-9.15	0.126	-21.50	45.10	-7.96	0.099	-17.65
Visits long enough all of the time	515	74.33	-6.00	0.378	-8.07	76.24	-9.83	0.075	-12.89
Gave clear explanations of medical condition and treatment	515	63.30	-5.77	0.425	-9.12	64.42	-8.82	0.156	-13.69
Provided excellent teaching about care	494	35.94	-1.27	0.807	-3.53	37.50	-3.04	0.495	-8.11
<b>QUALITY OF LIFE</b>									
Satisfied with life	497	55.20	-7.28	0.265	-13.19	53.61	-3.43	0.550	-6.40
Satisfied with present personal care arrangements	502	84.35	-12.45	0.026	-14.76	82.65	-13.38	0.011	-16.19
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: p-values are based on standard errors that account for the effects of clustering.</p> <p>a. Observations are weighted to give agencies equal representation.</p> <p>b. Observations are weighted to represent agencies proportional to size.</p> <p>c. Independent variables for cancer and MA and observations dropped because there was no variation in the satisfaction responses for those variables.</p>									

## **V. DIFFERENCES IN SATISFACTION AND QUALITY OF LIFE BETWEEN DISABLED AND AGED MEDICARE BENEFICIARIES**

In this chapter, we compare satisfaction with home health care and quality of life for disabled Medicare beneficiaries with aged Medicare beneficiaries in the post-BBA period. We begin with a description of the two samples' characteristics and utilization experience, examine descriptive satisfaction rates, and then estimate differences in the percentage satisfied, controlling for the characteristics of the samples. We conclude by examining results using an alternative weighting scheme to analyze the data.

Literature on satisfaction suggests that those with higher levels of disability may be prone to be less satisfied. Medicare beneficiaries under 65 years of age became eligible for Medicare because of their disabilities. A comparison of their satisfaction levels on a range of measures with elderly Medicare beneficiaries will point out areas where special efforts may need to be made to accommodate the special needs of the younger home health beneficiaries.

### **Comparison of the Disabled and Elderly Samples**

#### **Characteristics**

Table 5-1 shows the characteristics of the two samples. The groups differ significantly on many of the variables listed in the table. Disabled beneficiaries were more often male, non-White, Medicaid buy-in, less often married, and had lower family income than the aged beneficiaries post-BBA. The largest difference was for Medicaid buy-in, where 65% of the disabled had Medicaid buy-in as compared to only 19% of the aged. Family income also differed between the two age groups, with 15% of the disabled reporting income of \$20,000 and over as compared to 24% of the aged. Males represented approximately 9% more of the disabled (44% versus 35%), as did non-Whites (23% versus 14%). Thirteen percent less of those under 65 were married (30% versus 43%).

The disabled more often had unpaid help from family and friends (67% versus 61%) but there was no significant difference in their non-Medicaid paid help. They had a larger average number of hospital admissions in the six months prior to their home health admission (1.5 versus 1.3) and were seen more often for diabetes (16% versus 10%). The disabled had significantly fewer ADLs than the aged although the magnitude of the difference was small, 2.8 ADLs versus 2.6 ADLs. There were no differences in any of the community characteristics between the two groups.

**TABLE 5-1. Characteristics of Disabled and Aged Medicare Beneficiaries Admitted to Study Home Health Agencies in the Post-BBA Period**

	<b>Aged</b>	<b>Disabled</b>
<b>Number</b>	1240	425
<b>Demographic</b>		
Male	34.69	44.22***
Non-White	14.21	22.75***
State Medicaid buy-in	19.30	64.55***
Married	43.41	30.44***
Income \$20,000 and over	23.88	15.18***
Patient was survey respondent	51.90	69.99***
<b>Availability of Informal Care at Admission</b>		
Non-Medicare paid help in month prior to admission	18.76	20.39
Unpaid help from family/friends in month prior to admission	60.73	66.77*
<b>Prior Medicare Use</b>		
In hospital or SNF 2 weeks prior to home health admission	64.74	64.95
In-patient admissions 6 months prior to admission	1.26	1.54**
<b>Diagnoses at Admission</b>		
Diabetes	10.18	15.63**
Cerebrovascular disease	9.13	6.09
Cancer	4.50	2.99
<b>Functional Limitations at Admission</b>		
Toileting	34.93	31.22
Number of ADLs	2.80	2.55**
<b>Agency Characteristics</b>		
Agency for-profit	27.00	28.97
<b>Community</b>		
General		
Urban	93.18	93.76
State		
California	32.49	35.91
Florida	8.79	6.48
Illinois	23.60	21.77
Massachusetts	12.24	11.45
Texas	22.88	24.39
Historical Medical Use		
County Pt. A/B reimbursement per beneficiary (1000s)	3.31	3.31

SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.

NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting.

\* Significantly different from pre-BBA at  $p \leq 0.10$ , two-tailed test.

## Utilization

Table 5-2 presents utilization of home health services for the 120 days from home health admission. Overall utilization of services was not significantly different between the two groups in the post-BBA period. The number of visits, RVUs and paid dollars were not significantly different between the Medicare home health users 65 years of age and over and those under 65 years of age. There were however differences in use by type of service, with the disabled having significantly more skilled nursing visits (17.8 versus 14.5) but fewer aide visits (3.4 versus 6.9).

<b>TABLE 5-2. Home Health Utilization During the 120 Days After Home Health Admission in Post-BBA Period, Aged and Disabled Beneficiaries</b>				
	<b>Aged (N=1240)</b>	<b>Disabled (N=425)</b>	<b>Difference</b>	<b>p-value</b>
Number of Visits	28.75	28.80	0.05	0.981
Skilled Nursing	14.47	17.77	3.30	0.055
Aide	6.89	3.42	-3.47	0.000
Other <sup>a</sup>	7.38	7.61	0.23	0.816
Number of RVUs <sup>b</sup>	26.18	28.25	2.07	0.315
Paid Amount	2360.96	2559.62	198.66	0.283

SOURCES: CMS Home Health Standard Analytic Files and Per-Episode Home Health Prospective Payment Demonstration data.  
NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting.

a. Other includes physical therapy, occupational therapy, speech language pathology, and medical social services.  
b. The relative value units (RVUs) for each discipline were developed from the FFY 2000 per-visit limits for each discipline. Metropolitan Statistical Area (MSA) and non-MSA limits were weighted by the proportion of the Medicare population in MSA and non-MSA areas (72% MSA and 28% non-MSA) and the RVUs were developed from the resulting per-visit discipline limits by dividing each discipline's per-visit limit by the per-visit limit of a skilled nursing visit.

## Descriptive Comparisons of the Satisfaction and Quality of Life Measures

Significant differences between the two samples are found for 13 of the 18 variables (see Table 5-3). For all of the 13 measures, the disabled group was more dissatisfied than those 65 years of age and over. The disabled had significantly higher levels of dissatisfaction overall (with the agency, and willingness to recommend the agency), with the discharge (discharged too soon, needed services after discharge and it was a

problem), and with most but not all of the satisfaction measures looking at interpersonal relationships and technical skill. They scored staff lower on arriving late, rushing through work, and paying attention to the patient. There was no significant difference between the disabled and the aged with respect to encouraging independence and providing reassurance and support. The disabled less often felt that aides had completed all work, but there was no significant difference between the disabled and aged with respect to whether aides came often enough.

<b>TABLE 5-3. Comparison of 18 Variables Measuring Satisfaction for Aged and Disabled Medicare Home Health Beneficiaries, Post-BBA Period</b>					
	<b>N</b>	<b>Pre-</b>	<b>Post-</b>	<b>Difference</b>	<b>p-value</b>
<b>SATISFACTION</b>					
<b>Overall</b>					
Satisfaction with care received from agency	1638	95.13	90.14	-4.99	0.009
Would recommend agency to friend or family	1622	95.41	92.82	-2.59	0.064
<b>Discharge</b>					
Discharged too soon	1368	15.55	24.82	9.27	0.003
Needed home services after discharge--not available and a big problem	1419	10.02	17.75	7.73	0.031
<b>Agency Staff</b>					
<b>All Staff</b>					
Did not arrive late	1610	84.52	77.55	-6.97	0.034
Did not rush through work	1604	86.72	81.02	-5.70	0.062
Encouraged independence	1515	37.52	36.61	-0.91	0.797
Provided reassurance and emotional support	1591	38.00	38.08	0.08	0.979
Paid attention to patient	1596	75.16	67.90	-7.26	0.027
<b>Aides</b>					
Completed all work	780	81.90	71.30	-10.60	0.080
Did not come often enough	793	10.17	11.18	1.01	0.750
<b>Nurses and Therapists</b>					
Did not come often enough	1617	9.28	17.29	8.01	0.026
Were careful and thorough in examination and treatment	1616	45.74	39.93	-5.81	0.145
Visits long enough all of the time	1594	73.88	64.87	-9.01	0.010
Gave clear explanations of medical condition and treatment	1569	65.63	58.20	-7.43	0.062
Provided excellent teaching about care	1525	38.24	39.21	0.97	0.757
<b>QUALITY OF LIFE</b>					
Satisfied with life	1490	56.42	44.66	-11.76	0.012
Satisfied with present personal care arrangements	1517	78.90	68.98	-9.92	0.022
SOURCES: Surveys of Medicare home health care beneficiaries. NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.					

The disabled more often believed that nurses and therapists did not come often enough, and less often believed their visits were long enough, or that nurses and therapists gave clear explanations of medical conditions and treatment. They also were less satisfied with life and with their present personal care arrangements.

## Multivariate Analysis

Two of the dependent variables found significant in the descriptive analysis lost their significance when differences between the disabled and the aged were estimated controlling for the sample characteristics shown in Table 5-1. There were no longer significant differences (at  $p \leq .010$ ) between the disabled and aged samples in their beliefs about staff rushing through work, or nurses and therapists giving clear explanations of medical conditions and treatment (see Table 5-4).

<b>TABLE 5-4. Estimated Differences Between Aged and Disabled Medicare Beneficiaries in General Satisfaction with Home Health Care Received, Satisfaction with Agency Staff, and Quality of Life, Post-BBA Period</b>					
	<b>N</b>	<b>Aged Mean</b>	<b>Difference</b>	<b>p-value</b>	<b>% Difference</b>
<b>SATISFACTION</b>					
<b>Overall</b>					
Satisfaction with care received from agency	1638	95.13	-6.92	0.002	-7.27
Would recommend agency to friend or family	1622	95.41	-5.08	0.015	-5.32
<b>Discharge</b>					
Discharged too soon	1368	15.55	10.36	0.007	66.62
Needed home services after discharge--not available and a big problem	1419	10.02	7.57	0.037	75.55
<b>Agency Staff</b>					
<b>All Staff</b>					
Did not arrive late	1610	84.52	-4.80	0.089	-5.68
Did not rush through work	1604	86.72	-4.07	0.134	-4.69
Encouraged independence	1515	37.52	-2.45	0.609	-6.53
Provided reassurance and emotional support	1591	38.00	0.55	0.879	1.45
Paid attention to patient	1596	75.16	-8.27	0.051	-11.00
<b>Aides</b>					
Completed all work	780	81.90	-13.33	0.005	-16.28
Did not come often enough	793	10.17	4.84	0.258	47.59
<b>Nurses and Therapists</b>					
Did not come often enough	1617	9.28	12.69	0.001	136.75
Were careful and thorough in examination and treatment	1616	45.74	-6.65	0.149	-14.54
Visits long enough all of the time	1594	73.88	-12.25	0.001	-16.58
Gave clear explanations of medical condition and treatment	1569	65.63	-7.09	0.146	-10.80
Provided excellent teaching about care	1525	38.24	0.72	0.839	1.88
<b>QUALITY OF LIFE</b>					
Satisfied with life	1490	56.42	-17.76	0.000	-31.48
Satisfied with present personal care arrangements	1517	78.90	-15.63	0.003	-19.81
<small>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.            NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.</small>					

Overall satisfaction with the care received from the agency and willingness to recommend the agency was reasonably high for aged Medicare beneficiaries, 95% for both measures. Differences for the disabled were 7 and 5 percentage points, respectively.

Relative differences between the disabled and aged in the rates of being dissatisfied with the discharge process were much higher. Sixteen percent of those 65 and over

thought they were discharged too soon. The estimated rate for the disabled was 10 percentage points higher, 26%. For having a problem needing home services after discharge, the relative differences between the two groups was even greater. Ten percent of the aged reported such problems, but the rate was an estimated 8 percentage points higher for the disabled, for a total of 18% of the disabled having such problems.

Problems with staff arriving late and paying attention to the patient were reported significantly more frequently by the disabled. Eighty-five percent of the 65 and over population believed staff did not arrive late. The rate was 5 percentage points lower for those under 65 years of age. The percent reporting that staff paid attention to the patient all of the time was 8 percentage points lower for the disabled. The rate for the aged was 75%.

The disabled frequently believed that aides completed all work and that nurse and therapist visits were long enough. However, while 82% of the aged believed the aide completed all work, the estimated rate for the disabled was 69%. Seventy-four percent of the aged thought nurse and therapist visits were long enough. The rate was 62% for the disabled. The disabled also more often thought nurses and therapists did not come often enough. The rates were 9% for the aged, and 13 percentage points higher or 22% for the disabled.

Another group with large relative differences were the quality of life questions. Disabled Medicare beneficiaries were significantly less satisfied than the aged. Fifty-six percent of the aged were satisfied with their life. For the disabled, the rate was 18 percentage points less, or 38%. Being satisfied with present personal care arrangements was also less, 16 percentage points less for the disabled, or 63%.

## **Sensitivity Analysis**

Table 5-5 compares results for the effect of being under 65 years of age in an analysis that represents the individuals in the sample equally (right side of the table) as compared to representing the agencies equally (left side of the table).

All but one of the variables significant when the data were weighted representing agencies equally remained significant when the data were analyzed with individuals represented equally. The magnitudes of the differences were also reasonably close. The one variable not found to be significant in the individual-weighted analysis was staff not arriving late.

Two additional dependent variables were also found significant in the individual-equal analysis. The disabled significantly less often responded that staff encouraged independence. The percentage was 6 percentage points less for the disabled. The percentage believing staff encouraged independence for the aged was 38%. The second

dependent variable that became significant in the individual-equal weighting scheme was nurses and therapists gave clear explanations of medical conditions and treatment. The rate of satisfaction was 65% for the aged but 7 percentage points lower, or 58%, for the disabled.

**TABLE 5-5. Estimated Differences Between Aged and Disabled Medicare Beneficiaries in Satisfaction with Home Health Care in the Post-BBA Period, Agency-Equal and Individual-Equal Weights**

	N	Agency-Equal Weight <sup>a</sup>				Individual-Equal Weight <sup>b</sup>			
		Aged Mean	Difference	p-value	% Difference	Aged Mean	Difference	p-value	% Difference
<b>SATISFACTION</b>									
<b>Overall</b>									
Satisfaction with care received from agency	1638	95.13	-6.92	0.002	-7.27	94.83	-8.00	0.001	-8.44
Would recommend agency to friend or family	1622	95.41	-5.08	0.015	-5.32	94.62	-5.11	0.025	-5.40
<b>Discharge</b>									
Discharged too soon	13.68	15.55	10.36	0.007	66.62	15.90	9.37	0.004	58.93
Needed home services after discharge--not available and a big problem	14.19	10.02	7.57	0.037	75.55	9.44	10.12	0.002	107.20
<b>Agency Staff</b>									
<b>All Staff</b>									
Did not arrive late	1610	84.52	-4.80	0.089	-5.68	84.95	-2.73	0.323	-3.21
Did not rush through work	1604	86.72	-4.07	0.134	-4.69	86.18	-3.27	0.181	-3.79
Encouraged independence	1515	37.52	-2.45	0.609	-6.53	37.79	-6.21	0.069	-16.43
Provided reassurance and emotional support	1591	38.00	0.55	0.879	1.45	36.84	-0.78	0.785	-2.12
Paid attention to patient	1596	75.16	-8.27	0.051	-11.00	74.32	-8.29	0.022	-11.15
<b>Aides</b>									
Completed all work	780	81.90	-13.33	0.005	-16.28	82.00	-10.03	0.015	-12.23
Did not come often enough	793	10.17	4.84	0.258	47.59	10.48	5.18	0.179	49.43
<b>Nurses and Therapists</b>									
Did not come often enough	1617	9.28	12.69	0.001	136.75	9.82	9.74	0.001	99.19
Were careful and thorough in examination and treatment	1616	45.74	-6.65	0.149	-14.54	44.80	-1.72	0.569	-3.84
Visits long enough all of the time	1594	73.88	-12.25	0.001	-16.58	73.56	-10.79	0.001	-14.67
Gave clear explanations of medical condition and treatment	1569	65.63	-7.09	0.146	-10.80	65.20	-7.29	0.029	-11.18
Provided excellent teaching about care	1525	38.24	0.72	0.839	1.88	37.71	0.86	0.746	2.28
<b>QUALITY OF LIFE</b>									
Satisfied with life	1490	56.42	-17.76	0.000	-31.48	59.45	-18.00	0.000	-30.28
Satisfied with present personal care arrangements	1517	78.90	-15.63	0.003	-19.81	78.89	-13.91	0.001	-17.63
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: p-values are based on standard errors that account for the effects of clustering.</p> <p>a. Observations are weighted to give agencies equal representation.</p> <p>b. Observations are weighted to represent agencies proportional to size.</p>									

## **VI. FACTORS HAVING SIGNIFICANT IMPACTS ON SATISFACTION AND QUALITY OF LIFE OF DISABLED MEDICARE BENEFICIARIES**

In this chapter, we examine which independent variables had a significant effect on the measures of satisfaction and quality of life for the disabled. We analyze logistic regression results for each of the satisfaction measures highlighting the variables that are significant. The independent variables used in the models are divided into four categories: information about the beneficiary's demographic and social characteristics, information about the beneficiary's health and functional status, agency characteristics, and community characteristics.

Logistic regression results for all 18 of the dependent variables are shown in this chapter. They are organized by main category of satisfaction measure (i.e., overall satisfaction, satisfaction with discharge, satisfaction with agency staff, and satisfaction with quality of life). In the two previous chapters we focused the analysis on one independent variable (i.e., post-BBA in Chapter IV and disabled in Chapter V) and estimated the effect of that variable on the dependent variable. In this analysis we present complete logistic regression results, focusing on the odds of having the analyzed response for the significant independent variables. Variables significant at the 10% level of significance are highlighted in the tables.

### **Overall Satisfaction**

Results for two overall satisfaction measures (i.e., satisfaction with care and would recommend agency to family or friends) are shown in Table 6-1. Only two variables were significant in the analysis of overall satisfaction with the agency's care: whether the patient was the survey respondent and being in the State of Texas. Both variables increased the satisfaction with overall agency care. When the patient was the respondent (as compared with a proxy respondent) odds of being satisfied with the care received from the agency were 2.4:1. Odds of being satisfied in Texas (as compared to California) were 4.1:1.

<b>TABLE 6-1. Factors Having Significant Impacts on Overall Satisfaction of Disabled Medicare Home Health Beneficiaries</b>						
	<b>Satisfied with Care</b>			<b>Would Recommend Agency</b>		
	<b>Odds</b>	<b>Coeff.</b>	<b>p =</b>	<b>Odds</b>	<b>Coeff.</b>	<b>p =</b>
<b>Post-BBA</b>	0.650	-0.431	0.358	0.585	-0.537	0.303
<b>Demographic</b>						
Male	1.156	0.145	0.706	<b>2.397</b>	<b>0.874</b>	<b>0.029</b>
Non-White	0.745	-0.295	0.365	0.776	-0.254	0.551
State Medicaid buy-in	1.506	0.409	0.434	<b>3.243</b>	<b>1.177</b>	<b>0.076</b>
Married	1.018	0.018	0.967	0.660	-0.415	0.440
Income \$20,000 and over	0.928	-0.075	0.905	1.300	0.263	0.719
Patient was survey respondent	<b>2.415</b>	<b>0.882</b>	<b>0.010</b>	<b>5.151</b>	<b>1.639</b>	<b>0.000</b>
<b>Availability of Informal Care at Admission</b>						
Non-Medicare paid help in month prior to admission	1.107	0.102	0.788	1.022	0.022	0.959
Unpaid help from family/friends in month prior to admission	1.397	0.334	0.288	1.840	0.610	0.151
<b>Prior Medicare Use</b>						
In hospital or SNF 2 weeks prior to home health admission	1.308	0.269	0.484	0.569	-0.564	0.330
In-patient admissions 6 months prior to admission	0.887	-0.120	0.239	1.021	0.021	0.873
<b>Diagnoses at Admission</b>						
Diabetes	1.299	0.262	0.572	1.466	0.382	0.530
Cerebrovascular disease	0.728	-0.318	0.745	1.465	0.382	0.563
Cancer	a	a	a	6.184	1.822	0.177
<b>Functional Limitations at Admission</b>						
Toileting	0.350	-1.051	0.120	<b>0.290</b>	<b>-1.237</b>	<b>0.030</b>
Number of ADLs	1.058	0.056	0.779	1.219	0.198	0.344
<b>Agency Characteristics</b>						
Agency for-profit	0.668	-0.403	0.263	0.688	-0.374	0.502
<b>Community</b>						
General						
Urban	0.930	-0.072	0.935	1.643	0.497	0.605
State						
California	—	—	—	—	—	—
Florida	2.166	0.773	0.337	2.295	0.831	0.330
Illinois	1.730	0.548	0.195	1.599	0.469	0.458
Massachusetts	a	a	a	<b>4.678</b>	<b>1.543</b>	<b>0.090</b>
Texas	<b>4.126</b>	<b>1.417</b>	<b>0.024</b>	3.543	1.265	0.127
Historical Medical Use						
County Pt. A/B reimbursement per beneficiary (1000s)	1.313	0.273	0.571	0.973	-0.027	0.967
<i>Intercept</i>		0.496			0.257	
<i>Number in Sample</i>		481			519	
<i>F</i>		1.10			2.11	
<i>Degrees of freedom</i>		(21,35)			(23,40)	
<i>Prob &gt; F</i>		0.3911			0.0187	
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.</p> <p>a. Independent variable and observations dropped because there was no variation in the satisfaction responses for that variable.</p> <p>— Reference Group</p>						

With respect to the second satisfaction measure, willingness to recommend the agency, two demographic variables (i.e., males and buy-in beneficiaries) had higher odds of recommending the agency. Males had odds of 2.4:1 of being willing to recommend the agency, and for Medicaid buy-ins the odds were 3.2:1. The beneficiary being the respondent also resulted in higher odds of recommending the agency. Home health beneficiaries who were survey respondents had odds of 5.2:1 as compared to proxy survey respondents being willing to recommend the agency. Those who had a functional limitation with respect to toileting had smaller odds of recommending the agency relative to those without the toileting limitation. Their odds of being willing to recommend the agency were 0.3:1. Odds of being satisfied in Massachusetts (as compared to California) were 4.7:1.

## **Discharge**

Two satisfaction measures with respect to discharge were analyzed: whether the beneficiary believed they were discharged too soon, and whether services were not available after discharge and it was a big problem. Table 6-2 shows these logistic regressions.

Being non-White and having non-Medicare paid help in the month prior to home health admission both increased the odds of the beneficiary feeling he or she had been discharged too soon. Odds were 1.9:1 for being non-White and 1.8:1 for having paid help in the month before home health admission. Beneficiaries with a toileting ADL limitation had lower odds (0.3:1) of feeling they were discharged too soon; and the more ADL limitations the beneficiary had, the higher the odds of their believing they were discharged too soon.

Three independent variables significantly affected the beneficiary's answer to whether they needed home services that were not available and it was a problem. If they had a prior hospitalization before their home health admission, they had lower odds (0.5:1) of needing home services after discharge and it was a problem. This was also the case for people in Massachusetts (as compared to California) where the odds were 0.2:1. Having had paid help in the month before home health admission resulted in higher odds of having a problematic need for home services at the time of the interview (2.5:1).

TABLE 6-2. Factors Having Significant Impacts on Satisfaction with Discharge of Disabled Medicare Home Health Beneficiaries						
	Discharged Too Soon			Home Services–Not Available, Big Problem		
	Odds	Coeff.	p =	Odds	Coeff.	p =
<b>Post-BBA</b>	0.732	-0.312	0.387	0.684	-0.380	0.342
<b>Demographic</b>						
Male	1.398	0.335	0.280	0.628	-0.465	0.193
Non-White	<b>1.927</b>	<b>0.656</b>	<b>0.062</b>	1.784	0.579	0.159
State Medicaid buy-in	0.752	-0.286	0.543	0.767	-0.266	0.344
Married	0.736	-0.306	0.440	1.424	0.354	0.330
Income \$20,000 and over	1.389	0.329	0.526	1.195	0.178	0.603
Patient was survey respondent	0.592	-0.525	0.131	0.673	-0.396	0.331
<b>Availability of Informal Care at Admission</b>						
Non-Medicare paid help in month prior to admission	<b>1.802</b>	<b>0.589</b>	<b>0.051</b>	<b>2.474</b>	<b>0.906</b>	<b>0.020</b>
Unpaid help from family/friends in month prior to admission	1.288	0.253	0.419	0.958	-0.043	0.897
<b>Prior Medicare Use</b>						
In hospital or SNF 2 weeks prior to home health admission	0.805	-0.217	0.451	<b>0.458</b>	<b>-0.781</b>	<b>0.028</b>
In-patient admissions 6 months prior to admission	0.995	-0.005	0.956	1.068	0.066	0.412
<b>Diagnoses at Admission</b>						
Diabetes	0.738	-0.304	0.454	0.744	-0.296	0.550
Cerebrovascular disease	3.273	1.186	0.186	2.601	0.956	0.318
Cancer	0.326	-1.122	0.192	0.384	-0.956	0.392
<b>Functional Limitations at Admission</b>						
Toileting	<b>0.255</b>	<b>-1.366</b>	<b>0.015</b>	0.539	-0.618	0.314
Number of ADLs	<b>1.370</b>	<b>0.315</b>	<b>0.026</b>	0.966	-0.034	0.846
<b>Agency Characteristics</b>						
Agency for-profit	1.112	0.106	0.758	0.638	-0.449	0.309
<b>Community</b>						
General						
Urban	0.576	-0.552	0.408	1.805	0.591	0.411
State						
California	—	—	—	—	—	—
Florida	0.991	-0.009	0.982	0.488	-0.717	0.126
Illinois	0.859	-0.152	0.679	0.501	-0.692	0.181
Massachusetts	0.571	-0.561	0.218	<b>0.170</b>	<b>-1.774</b>	<b>0.052</b>
Texas	0.825	-0.192	0.623	0.606	-0.501	0.397
Historical Medical Use						
County Pt. A/B reimbursement per beneficiary (1000s)	0.810	-0.211	0.497	0.798	-0.226	0.545
<i>Intercept</i>		0.227			0.418	
<i>Number in Sample</i>		423			433	
<i>F</i>		1.26			0.96	
<i>Degrees of freedom</i>		(23,34)			(23,35)	
<i>Prob &gt; F</i>		0.2636			0.5345	
SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries. NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering. — Reference Group						

## Home Health Agency Staff

These variables measure the beneficiaries' perceptions of the agency's staff. The first group relates to the interpersonal relationships with the agency staff in general. The next two groups quiz beneficiary satisfaction with respect to the more technical aspects of aide, nurse and therapist care provided.

### Overall Staff

Table 6-3 shows the five logistic regressions for the variables:

- S Staff arrived three hours late or more or failed to come at all little or none of the time
- S Staff rushed through work little or none of the time
- S Strongly agree that staff encouraged independence
- S Staff's reassurance and emotional support was excellent
- S Staff paid attention to patient all of the time

One independent variable was significant in the "did not arrive late" regression. Those seen by a for-profit agency had smaller odds of responding that staff did not arrive late. Those served by for-profit agencies had odds of 0.4:1.

Being served by a for-profit agency also affected the odds of believing that staff did not rush through work. Those served by for-profit agencies had odds of 0.3:1 of saying staff did not rush through work. Those in urban areas and in Florida (as compared to California) had higher odds of responding that staff did not rush through work, 3.7:1, and 3.2:1.

With respect to encouraging independence two variables were significant. Those served by for-profit agencies had higher odds, 1:7:1, of strongly agreeing that staff encouraged independence. Those in Texas (as compared to California) had lower odds, 0.7:1.

Two variables were significant in the logit with respect to providing reassurance and emotional support. Those who had unpaid help from family and friends in the month prior to admission had higher odds, 1.8:1, of believing that staff provided excellent reassurance and emotional support. Those in Massachusetts (as compared to California) also had higher odds of 2.0:1.

The final dependent variable examined in this area was staff paid attention to the patient all of the time. Three independent variables were significant. Beneficiaries who had unpaid help from family or friends in the month before the home health admission had higher odds of believing that staff paid attention to them all of the time. Odds were 1.7:1. The larger the number of ADLs with which the beneficiary needed help, the less the odds

that they would respond favorably about staff attentiveness. Those in Massachusetts (compared to California) had higher odds of responding that staff paid attention to them all of the time.

**TABLE 6-3. Factors Having Significant Impacts on Satisfaction with Agency Staff of Disabled Medicare Home Health Beneficiaries**

	Did Not Arrive Late			Did Not Rush Through Work			Encouraged Independence		
	Odds	Coeff.	p =	Odds	Coeff.	p =	Odds	Coeff.	p =
<b>Post-BBA</b>	<b>0.310</b>	<b>-1.170</b>	<b>0.005</b>	<b>0.262</b>	<b>-1.340</b>	<b>0.013</b>	1.252	0.224	0.441
<b>Demographic</b>									
Male	0.681	-0.384	0.192	0.756	-0.280	0.412	0.766	-0.267	0.381
Non-White	0.503	-0.688	0.101	0.771	-0.260	0.463	0.711	-0.341	0.259
State Medicaid buy-in	0.699	-0.358	0.252	0.675	-0.393	0.310	0.666	-0.407	0.233
Married	0.653	-0.426	0.222	0.784	-0.244	0.475	0.631	-0.461	0.117
Income \$20,000 and over	1.254	0.226	0.690	<b>0.368</b>	<b>-0.999</b>	<b>0.069</b>	1.434	0.361	0.271
Patient was survey respondent	0.264	0.234	0.388	1.787	0.581	0.162	0.823	-0.195	0.518
<b>Availability of Informal Care at Admission</b>									
Non-Medicare paid help in month prior	0.876	-0.132	0.653	1.353	0.302	0.485	1.320	0.278	0.409
Unpaid help from family/friends in month prior	0.852	-0.160	0.550	0.896	-0.110	0.766	1.348	0.299	0.225
<b>Prior Medicare Use</b>									
In hospital or SNF 2 weeks prior	1.780	0.577	0.145	1.013	0.013	0.971	1.175	0.161	0.446
In-patient admissions 6 months prior	0.917	-0.087	0.345	1.128	0.121	0.234	1.014	0.014	0.850
<b>Diagnoses at Admission</b>									
Diabetes	0.817	-0.202	0.604	0.856	-0.156	0.695	0.932	-0.071	0.859
Cerebrovascular disease	1.558	0.443	0.682	2.573	0.945	0.347	1.043	0.042	0.938
Cancer	0.501	-0.691	0.421	6.812	1.919	0.120	1.675	0.516	0.474
<b>Functional Limitations at Admission</b>									
Toileting	1.110	0.105	0.811	1.381	0.322	0.529	0.644	-0.440	0.327
Number of ADLs	0.946	-0.056	0.673	0.842	-0.172	0.198	1.109	0.103	0.451
<b>Agency Characteristics</b>									
Agency for-profit	<b>0.406</b>	<b>-0.902</b>	<b>0.012</b>	<b>0.318</b>	<b>-1.146</b>	<b>0.004</b>	<b>1.688</b>	<b>0.523</b>	<b>0.068</b>
<b>Community</b>									
General									
Urban	2.141	0.761	0.282	<b>3.699</b>	<b>1.308</b>	<b>0.029</b>	1.508	0.411	0.428
State									
California	—	—	—	—	—	—	—	—	—
Florida	1.494	0.401	0.551	<b>3.204</b>	<b>1.164</b>	<b>0.088</b>	0.555	-0.589	0.194
Illinois	0.794	-0.230	0.567	0.705	-0.350	0.359	0.741	-0.299	0.278
Massachusetts	0.665	-0.409	0.486	1.798	0.586	0.380	1.169	0.156	0.774
Texas	0.971	-0.029	0.946	1.302	0.264	0.551	<b>0.644</b>	<b>-0.440</b>	<b>0.097</b>
Historical Medical Use									
Part A/B reimbursement per beneficiary	1.153	0.142	0.727	0.561	-0.577	0.189	1.303	0.265	0.407
<i>Intercept</i>		2.207			4.221			-1.869	
<i>Number in Sample</i>		523			518			488	
<i>F</i>		1.18			2.44			0.71	
<i>Degrees of freedom</i>		(23,40)			(23,40)			(23,37)	
<i>Prob &gt; F</i>		0.3188			0.0066			0.8005	
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.</p> <p>— Reference Group</p>									

**TABLE 6-3. Factors Having Significant Impacts on Satisfaction with Agency Staff of Disabled Medicare Home Health Beneficiaries  
(continued)**

	Provided Reassurance			Paid Attention to Patient		
	Odds	Coeff.	p =	Odds	Coeff.	p =
<b>Post-BBA</b>	0.837	-0.178	0.514	0.628	-0.465	0.149
<b>Demographic</b>						
Male	0.807	-0.215	0.457	1.062	0.060	0.810
Non-White	0.713	-0.338	0.151	0.969	-0.032	0.907
State Medicaid buy-in	0.949	-0.052	0.870	1.073	0.070	0.784
Married	0.703	-0.352	0.310	0.940	-0.061	0.843
Income \$20,000 and over	0.919	-0.085	0.840	0.950	-0.051	0.897
Patient was survey respondent	1.214	0.194	0.535	1.707	0.535	0.105
<b>Availability of Informal Care at Admission</b>						
Non-Medicare paid help in month prior	0.964	-0.036	0.890	0.984	-0.016	0.944
Unpaid help from family/friends in month prior	<b>1.780</b>	<b>0.577</b>	<b>0.053</b>	<b>1.671</b>	<b>0.513</b>	<b>0.054</b>
<b>Prior Medicare Use</b>						
In hospital or SNF 2 weeks prior	1.185	0.170	0.551	1.465	0.382	0.192
In-patient admissions 6 months prior	1.098	0.094	0.127	1.077	0.074	0.370
<b>Diagnoses at Admission</b>						
Diabetes	1.124	0.117	0.681	1.138	0.129	0.686
Cerebrovascular disease	0.505	-0.683	0.318	1.037	0.036	0.952
Cancer	0.529	-0.636	0.429	2.606	0.958	0.151
<b>Functional Limitations at Admission</b>						
Toileting	1.257	0.229	0.594	1.554	0.441	0.287
Number of ADLs	1.000	0.000	0.999	<b>0.820</b>	<b>-0.198</b>	<b>0.084</b>
<b>Agency Characteristics</b>						
Agency for-profit	1.238	0.213	0.439	1.431	0.359	0.334
<b>Community</b>						
General						
Urban	1.397	0.334	0.423	1.359	0.307	0.473
State						
California	—	—	—	—	—	—
Florida	0.724	-0.323	0.362	1.385	0.326	0.385
Illinois	0.833	-0.183	0.537	1.634	0.491	0.191
Massachusetts	<b>2.018</b>	<b>0.702</b>	<b>0.056</b>	<b>4.905</b>	<b>1.590</b>	<b>0.002</b>
Texas	0.902	-0.103	0.773	0.807	-0.214	0.534
Historical Medical Use						
Part A/B reimbursement per beneficiary	1.077	0.075	0.785	1.136	0.128	0.670
<i>Intercept</i>		-1.437			-0.591	
<i>Number in Sample</i>		513			517	
<i>F</i>		1.21			1.10	
<i>Degrees of freedom</i>		(23,40)			(23,40)	
<i>Prob &gt; F</i>		0.2950			0.3820	
SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries. NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering. — Reference Group						

TABLE 6-4. Factors Having Significant Impacts on Satisfaction with Agency Aides of Disabled Medicare Home Health Beneficiaries						
	Completed All Work			Did Not Come Often Enough		
	Odds	Coeff.	p =	Odds	Coeff.	p =
<b>Post-BBA</b>	0.684	-0.379	0.498	2.559	0.940	0.312
<b>Demographic</b>						
Male	1.043	0.042	0.922	0.479	-0.735	0.221
Non-White	1.092	0.088	0.871	0.376	-0.979	0.130
State Medicaid buy-in	0.547	-0.602	0.212	0.466	-0.765	0.246
Married	1.188	0.172	0.716	1.390	0.330	0.641
Income \$20,000 and over	0.505	-0.683	0.397	0.557	-0.584	0.449
Patient was survey respondent	<b>2.742</b>	<b>1.009</b>	<b>0.054</b>	<b>0.238</b>	<b>-1.436</b>	<b>0.039</b>
<b>Availability of Informal Care at Admission</b>						
Non-Medicare paid help in month prior to admission	0.888	-0.118	0.810	1.500	0.406	0.383
Unpaid help from family/friends in month prior to admission	0.553	-0.593	0.284	1.095	0.091	0.818
<b>Prior Medicare Use</b>						
In hospital or SNF 2 weeks prior to home health admission	<b>2.395</b>	<b>0.874</b>	<b>0.042</b>	<b>0.367</b>	<b>-1.004</b>	<b>0.086</b>
In-patient admissions 6 months prior to admission	0.853	-0.159	0.149	1.331	0.286	0.136
<b>Diagnoses at Admission</b>						
Diabetes	1.328	0.284	0.656	0.608	-0.497	0.666
Cerebrovascular disease	1.593	0.466	0.636	<b>7.017</b>	<b>1.948</b>	<b>0.025</b>
Cancer	3.585	1.277	0.291	a	a	a
<b>Functional Limitations at Admission</b>						
Toileting	1.993	0.690	0.352	2.487	0.911	0.421
Number of ADLs	0.700	-0.357	0.147	<b>0.607</b>	<b>-0.499</b>	<b>0.054</b>
<b>Agency Characteristics</b>						
Agency for-profit	1.544	0.434	0.426	1.051	0.050	0.943
<b>Community</b>						
General						
Urban	0.801	-0.222	0.785	1.259	0.231	0.810
State						
California	—	—	—	—	—	—
Florida	0.664	-0.409	0.471	<b>0.061</b>	<b>-2.800</b>	<b>0.035</b>
Illinois	<b>4.156</b>	<b>1.425</b>	<b>0.030</b>	0.446	-0.807	0.341
Massachusetts	a	a	a	a	a	a
Texas	0.311	-1.169	0.109	<b>0.078</b>	<b>-2.547</b>	<b>0.000</b>
Historical Medical Use						
County Pt. A/B reimbursement per beneficiary (1000s)	<b>3.043</b>	<b>1.113</b>	<b>0.089</b>	<b>3.864</b>	<b>1.352</b>	<b>0.057</b>
<i>Intercept</i>		-1.687			-3.749	
<i>Number in Sample</i>		214			207	
<i>F</i>		1.18			11.38	
<i>Degrees of freedom</i>		(23,25)			(21,26)	
<i>Prob &gt; F</i>		0.3457			0.0000	
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.</p> <p>a. Independent variable and observations dropped because there was no variation in the satisfaction responses for that variable.</p> <p>— Reference Group</p>						

## Aides

Logistic regressions for two dependent variables regarding the technical quality of the aide's work are shown in Table 6-4. These are aide completed all work and aide did not come often enough. Four variables had a significant effect on the odds of a beneficiary believing that the aide completed all work all of the time. When the patient was the respondent as compared to a proxy the odds were 2.7:1. If they had had a prior hospitalization before their home health care, the odds were also higher by odds of 2.4:1. Those in Illinois had higher odds as compared to those in California (4.2:1) of indicating that the aide completed all work. The higher the Medicare reimbursement in the beneficiaries' county the more likely they were to believe that aides completed all work.

Patient respondents and those with a prior hospitalization had lower odds of answering that the aide did not come often enough. Odds were 0.2:1 for patient respondents, and 0.4:1 for those who had a prior hospitalization. Those with more ADLs were also less likely to believe aides did not come often enough as were those in Florida and Texas as compared to California. Those with higher odds of answering that the aide did not come often enough were those with cerebrovascular disease (odds of 7.0:1) and those with higher Part A and Part B historical reimbursement in their communities.

## Nurses and Therapists

Five dependent variables with respect to the technical quality of nurses and therapist care are shown in Table 6-5. These variables are:

- S Nurses and therapists did not come often enough
- S Nurses and therapists care and thoroughness in examination and treatment was excellent
- S Nurses and therapists visits were long enough all of the time
- S Nurses and therapists gave clear explanations of medical condition and treatment
- S Nurses and therapists teaching about care was excellent

If the respondent was the patient, the odds of responding that nurses and therapists did not come often enough were lower (0.5:1), as they were for those with diabetes (0.3:1), those in urban areas (0.2:1), and those in Massachusetts as compared to California (0.3:1). No independent variables were significant in the regression of whether nurses and therapists were careful and thorough in examination and treatment.

Patient respondents, and those with difficulty with the ADL toileting were more likely to believe that nurse and therapist visits were long enough all of the time. Patient respondents had odds 1.8:1, and those with the toileting ADL 2.8:1. The larger the number of hospital admissions in the six months prior to home health admission the higher the

odds of believing nurse and therapist visits were long enough all of the time. Those with cerebrovascular disease and with more ADLs had lower odds of believing nurse and therapist visits were long enough.

TABLE 6-5. Factors Having Significant Impacts on Satisfaction with Nurses and Therapists of Disabled Medicare Home Health Beneficiaries									
	Did Not Come Often Enough			Careful and Thorough in Exam			Visits Long Enough All of the Time		
	Odds	Coeff.	p =	Odds	Coeff.	p =	Odds	Coeff.	p =
<b>Post-BBA</b>	<b>2.260</b>	<b>0.815</b>	<b>0.073</b>	0.679	-0.387	0.126	0.742	-0.299	0.378
<b>Demographic</b>									
Male	1.228	0.205	0.538	0.876	-0.133	0.545	1.055	0.054	0.847
Non-White	1.394	0.332	0.342	0.878	-0.130	0.687	0.913	-0.091	0.801
State Medicaid buy-in	0.627	-0.467	0.368	1.088	0.084	0.760	1.657	0.505	0.108
Married	0.765	-0.268	0.517	1.017	0.017	0.950	1.104	0.099	0.806
Income \$20,000 and over	0.734	-0.309	0.583	1.459	0.378	0.277	1.061	0.059	0.880
Patient was survey respondent	<b>0.508</b>	<b>-0.676</b>	<b>0.012</b>	1.388	0.328	0.173	<b>1.848</b>	<b>0.614</b>	<b>0.043</b>
<b>Availability of Informal Care at Admission</b>									
Non-Medicare paid help in month prior	1.078	0.075	0.812	0.934	-0.068	0.827	0.712	-0.339	0.194
Unpaid help from family/friends in month prior	0.832	-0.149	0.630	1.062	0.060	0.822	1.282	0.249	0.345
<b>Prior Medicare Use</b>									
In hospital or SNF 2 weeks prior	0.711	-0.341	0.400	1.411	0.344	0.252	1.064	0.062	0.798
In-patient admissions 6 months prior	0.963	-0.038	0.728	0.986	-0.014	0.857	<b>1.138</b>	<b>0.129</b>	<b>0.099</b>
<b>Diagnoses at Admission</b>									
Diabetes	<b>0.332</b>	<b>-1.104</b>	<b>0.049</b>	1.139	0.130	0.645	0.796	-0.228	0.413
Cerebrovascular disease	2.947	1.081	0.107	0.600	-0.511	0.436	<b>0.349</b>	<b>-1.052</b>	<b>0.068</b>
Cancer	0.702	-0.354	0.699	1.086	0.082	0.903	0.807	-0.215	0.705
<b>Functional Limitations at Admission</b>									
Toileting	0.522	-0.651	0.200	1.021	0.021	0.963	<b>2.812</b>	<b>1.034</b>	<b>0.012</b>
Number of ADLs	1.210	0.191	0.250	0.981	-0.019	0.868	<b>0.754</b>	<b>-0.283</b>	<b>0.011</b>
<b>Agency Characteristics</b>									
Agency for-profit	1.611	0.477	0.243	0.683	-0.382	0.181	1.315	0.274	0.465
<b>Community</b>									
General									
Urban	<b>0.202</b>	<b>-1.599</b>	<b>0.088</b>	1.140	0.131	0.636	1.026	0.025	0.957
State									
California	—	—	—	—	—	—	—	—	—
Florida	0.361	-1.018	0.196	1.185	0.170	0.557	1.017	0.017	0.965
Illinois	0.535	-0.626	0.323	1.061	0.059	0.831	1.202	0.184	0.631
Massachusetts	<b>0.259</b>	<b>-1.350</b>	<b>0.034</b>	2.160	0.770	0.317	1.246	0.220	0.570
Texas	0.697	-0.360	0.523	1.191	0.175	0.563	1.656	0.504	0.167
Historical Medical Use									
Part A/B reimbursement per beneficiary	1.494	0.401	0.509	0.763	-0.270	0.348	0.953	-0.048	0.869
<i>Intercept</i>		-1.200			0.246			0.193	
<i>Number in Sample</i>		519			515			515	
<i>F</i>		1.91			0.69			1.23	
<i>Degrees of freedom</i>		(23,40)			(23,40)			(23,40)	
<i>Prob &gt; F</i>		0.0350			0.8276			0.2759	
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.</p> <p>— Reference Group</p>									

<b>TABLE 6-5. Factors Having Significant Impacts on Satisfaction with Nurses and Therapists of Disabled Medicare Home Health Beneficiaries (continued)</b>						
	<b>Clear Explanations of Condition and Treatment</b>			<b>Excellent Teaching about Care</b>		
	<b>Odds</b>	<b>Coeff.</b>	<b>p =</b>	<b>Odds</b>	<b>Coeff.</b>	<b>p =</b>
<b>Post-BBA</b>	0.772	-0.259	0.425	0.946	-0.056	0.807
<b>Demographic</b>						
Male	0.943	-0.058	0.824	0.721	-0.327	0.142
Non-White	0.663	-0.411	0.114	0.964	-0.037	0.905
State Medicaid buy-in	1.042	0.338	0.202	<b>1.637</b>	<b>0.493</b>	<b>0.095</b>
Married	0.814	-0.206	0.525	0.931	-0.071	0.801
Income \$20,000 and over	1.634	0.491	0.193	1.571	0.452	0.229
Patient was survey respondent	<b>1.830</b>	<b>0.604</b>	<b>0.036</b>	1.121	0.114	0.710
<b>Availability of Informal Care at Admission</b>						
Non-Medicare paid help in month prior	0.704	-0.351	0.329	0.778	-0.252	0.323
Unpaid help from family/friends in month prior	<b>1.778</b>	<b>0.575</b>	<b>0.023</b>	<b>1.731</b>	<b>0.549</b>	<b>0.017</b>
<b>Prior Medicare Use</b>						
In hospital or SNF 2 weeks prior	1.018	0.018	0.947	1.097	0.093	0.707
In-patient admissions 6 months prior	1.003	0.003	0.978	1.005	0.004	0.956
<b>Diagnoses at Admission</b>						
Diabetes	<b>1.645</b>	<b>0.498</b>	<b>0.032</b>	0.838	-0.177	0.581
Cerebrovascular disease	0.475	-0.745	0.178	0.664	-0.410	0.563
Cancer	1.332	0.287	0.682	0.667	-0.406	0.573
<b>Functional Limitations at Admission</b>						
Toileting	1.437	0.362	0.423	1.541	0.433	0.488
Number of ADLs	0.904	-0.101	0.368	0.913	-0.091	0.522
<b>Agency Characteristics</b>						
Agency for-profit	0.980	-0.021	0.951	0.838	-0.177	0.453
<b>Community</b>						
General						
Urban	1.798	0.586	0.317	1.288	0.253	0.300
State						
California	—	—	—	—	—	—
Florida	1.089	0.086	0.806	1.517	0.416	0.399
Illinois	1.571	0.452	0.197	1.075	0.073	0.743
Massachusetts	1.465	0.382	0.346	1.061	0.059	0.892
Texas	1.569	0.451	0.169	0.847	-0.166	0.582
Historical Medical Use						
Part A/B reimbursement per beneficiary	0.849	-0.164	0.602	0.692	-0.369	0.137
<i>Intercept</i>		-0.416			0.095	
<i>Number in Sample</i>		515			494	
<i>F</i>		1.44			1.00	
<i>Degrees of freedom</i>		(23,40)			(23,39)	
<i>Prob &gt; F</i>		0.1523			0.4913	
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.</p> <p>— Reference Group</p>						

With respect to clear explanations by nurses and therapists, patient respondents, those with unpaid help from family or friends in the month prior to home health admission, and those with diabetes had higher odds of believing nurses and therapists gave clear explanations of medical condition and treatment. Odds were 1.8:1 for patient respondents and for those with prior unpaid help, and 1.6:1 for those with diabetes.

Two independent variables significantly affected the answers to questions about nurses and therapists providing excellent teaching about care. Those who had unpaid help from family or friends in the month before the home health admission and Medicaid buy-in beneficiaries had odds of 1.7:1 and 1.6:1, respectively, of believing that nurses and therapists gave excellent teaching about care.

## **Quality of Life**

Two measures of satisfaction with overall life quality were analyzed: satisfaction with life and satisfaction with current personal care arrangements (Table 6-6). With respect to satisfaction with life, two independent variables had significantly higher satisfaction: the patient being the respondent and the patient having cancer. Patient respondents had odds of 2.2:1 and those being seen for a diagnosis of cancer had odds of 4.1:1. Those in areas with higher historical Part A and Part B reimbursement had lower odds of being satisfied with life.

Two independent variables raised the odds of satisfaction with present personal care arrangements, being male and living in Illinois. Males had odds of 2.0:1 as compared to females and those in Illinois (as compared with those in California) had odds of 2.1:1 of being satisfied with current personal care arrangements. Those with cerebrovascular disease and with income over \$20,000 per year had lower odds of being satisfied with personal care arrangements, both had odds of 0.4:1.

## **Summary**

Few control variables seemed to have a systematic effect on the satisfaction variables for disabled Medicare beneficiaries. In addition, the regression adjustments did not have substantial effects on the results as only five of the 18 were significant. The one exception where a systematic effect was found was the patient being the survey respondent. Significant effects were found for eight of the 18 dependent variables, always in the direction of increasing satisfaction.

Proxy respondents for disabled Medicare beneficiaries were more critical about the care received, especially the technical aspects of the care. They were more critical overall and less prone to recommend the agency, more critical of aides completing work and

coming often enough, and of nurses and therapists coming often enough, having long enough visits, and giving clear explanations. They were also more negative about the home care recipient's satisfaction with life.

TABLE 6-6. Factors Having Significant Impacts on Quality of Life of Disabled Medicare Home Health Beneficiaries						
	Satisfied with Life			Satisfied with Personal Care Arrangements		
	Odds	Coeff.	p =	Odds	Coeff.	p =
<b>Post-BBA</b>	0.728	-0.317	0.265	<b>0.476</b>	<b>-0.743</b>	<b>0.026</b>
<b>Demographic</b>						
Male	1.305	0.266	0.317	<b>2.030</b>	<b>0.708</b>	<b>0.018</b>
Non-White	1.337	0.291	0.403	0.979	-0.021	0.952
State Medicaid buy-in	1.297	0.260	0.332	1.318	0.276	0.409
Married	0.676	-0.392	0.289	0.821	-0.197	0.595
Income \$20,000 and over	0.702	-0.354	0.302	<b>0.443</b>	<b>-0.814</b>	<b>0.095</b>
Patient was survey respondent	<b>2.161</b>	<b>0.770</b>	<b>0.003</b>	1.104	0.099	0.782
<b>Availability of Informal Care at Admission</b>						
Non-Medicare paid help in month prior to admission	0.949	-0.052	0.842	0.940	-0.062	0.839
Unpaid help from family/friends in month prior to admission	1.082	0.078	0.755	0.834	-0.181	0.446
<b>Prior Medicare Use</b>						
In hospital or SNF 2 weeks prior to home health admission	1.102	0.097	0.706	1.320	0.278	0.271
In-patient admissions 6 months prior to admission	1.002	0.002	0.978	1.007	0.007	0.928
<b>Diagnoses at Admission</b>						
Diabetes	1.020	0.020	0.959	0.999	-0.001	0.998
Cerebrovascular disease	1.079	0.076	0.889	<b>0.371</b>	<b>-0.991</b>	<b>0.071</b>
Cancer	<b>4.135</b>	<b>1.420</b>	<b>0.062</b>	0.381	-0.966	0.183
<b>Functional Limitations at Admission</b>						
Toileting	1.504	0.408	0.292	1.046	0.045	0.924
Number of ADLs	1.050	0.049	0.635	1.104	0.098	0.379
<b>Agency Characteristics</b>						
Agency for-profit	1.061	0.060	0.849	1.383	0.324	0.293
<b>Community</b>						
General						
Urban	0.789	-0.237	0.562	0.445	-0.810	0.166
State						
California	—	—	—	—	—	—
Florida	1.298	0.261	0.452	1.293	0.257	0.566
Illinois	1.243	0.218	0.490	<b>2.065</b>	<b>0.725</b>	<b>0.067</b>
Massachusetts	1.438	0.363	0.424	1.292	0.256	0.524
Texas	1.695	0.528	0.136	1.224	0.202	0.613
Historical Medical Use						
County Pt. A/B reimbursement per beneficiary (1000s)	<b>0.518</b>	<b>-0.658</b>	<b>0.045</b>	1.635	0.492	0.170
<i>Intercept</i>	1.094			-0.205		
<i>Number in Sample</i>	497			502		
<i>F</i>	1.42			1.75		
<i>Degrees of freedom</i>	(23,40)			(23,40)		
<i>Prob &gt; F</i>	0.1606			0.0600		
<p>SOURCES: CMS Denominator, Standard Analytic Files, Provider of Services and Cost Report files, Per-Episode Home Health Prospective Payment Demonstration data, OASIS data, Area Resource File, and surveys of Medicare home health care beneficiaries.</p> <p>NOTE: Observations are weighted to represent the agencies equally; p-values take account of the effects of weighting and clustering.</p> <p>— Reference Group</p>						

Among the other demographic variables, having Medicaid buy-in was significant for two of the dependent variables. The two dependent variables for which significance for it was found resulted in higher levels of satisfaction. Buy-ins had higher odds of believing they would recommend the agency and of responding that nurse and therapist teaching about care was excellent. Gender was significant for two of the dependent variables with males significantly more satisfied. Males had higher odds of recommending the agency and of being satisfied with present personal care arrangements. Income was significant in two regressions: staff rushing through work and satisfaction with present personal care arrangements. Those with incomes over \$20,000 per year were more dissatisfied with staff rushing through work and with their current personal care arrangements.

People who had had unpaid help from family or friends in the month prior to home health admission were more satisfied with staff providing reassurance and paying attention to them, and with the explanations and teaching given by nurses and therapists. Those who had paid help in the month prior were more likely to feel they were discharged too soon and that they needed home services that were not available and it was a big problem.

Disabled beneficiaries who were post-hospitalization were prone to be more satisfied on three measures. They had lower odds of responding that they needed home services which were not available and it was a big problem, and of thinking that aides did not come often enough. They also had higher odds of responding that aides completed all work. The larger the number of hospitalizations in the six months prior to the home health admission, the higher the odds of responding that nurses and therapists had long enough visits all of the time.

Cerebrovascular disease was significant in three of the 18 regressions. Those with this diagnosis for their home health care did not feel that aides came often enough or that the nurse and therapist visits were long enough. They also were more often not satisfied with their current personal care arrangements. The diagnosis of diabetes was significant in two regressions. The disabled with a home health diagnosis of diabetes had lower odds of believing nurses and therapists did not come often enough and higher odds of finding clear explanations from nurses and therapists. Cancer was significant in only one analysis, satisfaction with life, where those receiving home health for a diagnosis of cancer had higher odds of expressing satisfaction.

The number of ADLs was significant in four of the regressions, although the effect was not always in the direction of dissatisfaction. Having more ADLs was associated with higher odds of the disabled beneficiary feeling he or she was discharged too soon, that the nurse and therapist visits were not long enough, and that staff did not always pay attention to him or her. More ADLs were also associated with lower odds of thinking aides did not come often enough. Having a limitation in toileting was connected with lower odds of being willing to recommend the agency, and at the same time lower odds of thinking they were

discharged too soon and higher odds of saying that nurse and therapist visits were long enough all of the time.

Beneficiaries seen by for-profit agencies were less likely to think that staff did not arrive late and did not rush through work but more likely to respond that staff encouraged independence. The disabled in urban areas expressed more satisfaction regarding staff rushing through work and nurses and therapists coming often enough. Higher historical Medicare reimbursement in the community raised the odds of believing aides completed all work, but also raised the odds of responding that aides did not come often enough and lowered the odds that the patient was satisfied with life.

## **VII. SUMMARY AND CONCLUSION**

The BBA of 1997 made major policy changes in home health policy. Immediately after its passage an IPS was put in place to restrain the growth of home health costs while a PPS was developed. This legislation, combined with compliance activities underway by several government agencies since the mid-1990s, had an immediate and dramatic impact on the number of Medicare beneficiaries using home care services and the amount of home health services they used.

Such a reduction in utilization may impact the quality of care provided and result in poor outcomes, especially for vulnerable population groups. This study looks in-depth at the disabled Medicare beneficiaries, studying two aspects of quality of care--beneficiary satisfaction and quality of life.

Specifically, three main analyses were conducted:

1. Analysis of the immediate impact of the BBA of 1997 on satisfaction with Medicare home health care and quality of life among disabled home health users.
2. Analysis of the difference in satisfaction and quality of life among disabled home health care users as compared to aged home health care users in the post-BBA period.
3. Analysis of the significant factors affecting satisfaction with home health care and quality of life for Medicare disabled beneficiaries.

Data used are from the control group of the CMS Per-Episode Home Health Prospective Payment Demonstration for the pre-BBA period and data collected in the post-BBA period that mimics that study's methodology. In both periods, surveys of Medicare home health users 120 days after their home health admission were conducted to collect data on satisfaction with the care received. These data were linked to Medicare claims and eligibility information, POS and Cost Report files, OASIS data, and community characteristics.

This study is limited by several factors. Small sample sizes affect the analysis especially the analysis of the disabled in the pre- as compared to the post-BBA period. The pre-BBA sample size was only 106 disabled individuals, with 425 disabled beneficiaries in the post-BBA period. Although we tried to mimic the data collection effort conducted in the pre- period, agencies going out of business and refusing to participate forced us to substitute replacement agencies so that some agency types were underrepresented in the final sample. In addition, increased privacy concerns required modification of the interview process thereby creating potential bias. Finally, disabled

Medicare beneficiaries had a higher likelihood of getting home health or personal care services from the Medicaid program, since more than two-thirds of them are Medicaid eligible while less than one-fifth of the aged are eligible to receive services from Medicaid.

## **Pre-BBA vs. Post-BBA**

Of the 18 dependent variables, only four were significantly different at the 10% level of significance between the two periods. Three of the four related to staff satisfaction issues: staff coming late, staff rushing through work, and nurses and therapists not coming often enough. The fourth significant difference was for one of the quality of life measures, satisfaction with current personal care arrangements 120 days from their home health care admission. Considerably more disabled beneficiaries post-BBA were dissatisfied with their current personal care arrangements at the time of the interview.

For three of these four measures, the relative differences between the two time periods were moderate, about 15%. The exception was for nurses and therapists not coming often enough. The post-BBA difference for nurses and therapists not coming often enough was 9 percentage points from a pre-BBA rate of 14%, a relative difference of 63%. The other three measures were all 12-13 percentage point differences from pre-BBA rates of 84-89%.

These moderate decreases indicate that the disabled had problems both with interpersonal aspects of their care--staff coming late and rushing through work--as well as with nurses and therapists not coming often enough. The disabled also perceived more problems with their current personal care arrangements post-BBA. These findings suggest that there are more unmet personal care needs for the disabled in the post- BBA period, a result that may indicate perceived needs not able to be met by the current Medicare benefit.

## **Disabled vs. Aged**

Disabled beneficiaries were considerably more dissatisfied than the aged sample in the post-BBA period. Of the 18 dependent variables, 11 were significant. Relative effects ranged from 5% to 137% (median 17%, mean 39%). The disabled were less satisfied with the overall care from the agency and less willing to recommend the agency. They found more problems with staff attentiveness to the patient, aide completing all work, and nurses and therapists coming often enough and for long enough visits. They were also less satisfied with life and with their present personal care arrangements. Some of the largest relative differences between the two age groups, two-thirds to three-fourths larger, were found for questions concerning discharge. The disabled were much more likely to feel they

were discharged too soon, and that they needed home services after discharge and it was a problem.

These differences between responses by the disabled as compared to the aged using home health services should not be surprising. They are very consistent with the literature reviewed in Chapter II. Younger, more disabled individuals evidence lower levels of satisfaction in general. The disabled gained eligibility for Medicare because of their chronic disability and thus are less likely to come out of their home health care episode without continuing need for chronic care services. Eligibility for Medicare for most of the disabled requires the receipt of SSDI payments for two years. To receive SSDI payments, an individual must be unable to work due to physical or mental impairments. Those who have had such impairments for two years or more are much more likely to need help before their admission and to have continuing need for chronic care services.

## **Significant Independent Variables**

Few independent variables in the logit analysis of the disabled had consistent effects on the satisfaction variables for Medicare home health beneficiaries. The effects found, however, were generally logical and intuitive. One independent variable that did have a consistent effect was having the interview conducted with a proxy. Proxies reported significantly more beneficiary dissatisfaction on eight of the 18 measures.

Proxy respondents seem to be prone to feel that the beneficiary is more critical about the care received and more pessimistic about his or her life quality. Since many of them are likely caregivers, it is unclear if they are answering about their own levels of satisfaction and/or reflecting their own feelings about life quality if they were as disabled. In any case, findings indicate the importance of considering the effect of a proxy interview in a satisfaction study.

Those with cerebrovascular disease (strokes) and having more ADLs had significant findings for three or more of the satisfaction measures. For those having strokes, the disabling nature of the disease likely contributed to more dissatisfaction with having enough aide visits and nurses and therapist visits being long enough. They were also dissatisfied with their personal care arrangements. Likewise, more limitations in ADLs generally resulted in more dissatisfaction with staff attention, nurse and therapist visits being long enough, and being discharged too soon.

Stroke is a particularly disabling condition often rendering those affected incapable of walking, talking, and otherwise functioning. Because of the suddenness of its onset, and the need for help with personal activities, the elements with which they seem to find dissatisfaction should not be surprising. Those with more ADLs also expressed

dissatisfaction in some of the same areas, as well as more often believing they had been discharged too soon from home health care.

The pattern among those who indicated having paid and unpaid help in the month before home health admission is also of interest. Beneficiaries having prior unpaid help were more often satisfied with staff attentiveness and providing reassurance, and nurses' and therapists' explanations and teaching. Those having prior paid help in the month before their home health admission were more dissatisfied with their discharge (i.e., discharged too soon, needed home services and it was a problem).

Those with unpaid help in the month prior to their home health admission seem more appreciative of staff paying attention to them, reassuring them and nurses and therapists providing explanations and teaching. Unpaid workers may be less knowledgeable about the medical aspects of the beneficiaries' condition and treatment and have less ability to provide teaching about care. Those wishing to remain self-reliant may especially appreciate this help.

Those who had paid help prior to their home health are more critical, feeling their discharge was premature and that their personal home care service needs continue to be a problem. Since they had come into home care in a situation where they were already receiving paid home care, their expectations about continuing to need care may be greater.

Patients seen by for-profit agencies had more problems with staff tardiness and not coming often enough but also found staff more often encouraged independence. For-profit agencies may exert more efforts to schedule their staff more closely and to use staff to encourage home health users' independence.

## **Conclusion**

These findings indicate that despite large reductions in the number of home health services provided, there were few differences in reported satisfaction with the care received post-BBA. Satisfaction rates were over 90% for overall satisfaction with care and willingness to recommend the agency. The percentage of disabled Medicare beneficiaries who believed they were discharged too soon or needed care after discharge that was not available and it was a problem was actually lower though not significantly in the post-BBA period.

Satisfaction measures related to the staff were not significantly different between the two periods for three-fourths of the measures. Only three were significantly different post-BBA. Two of the measures where significant differences were found were increases in those beneficiaries reporting that staff came late and that staff rushed through work.

Lower satisfaction on these measures was likely a reflection of pressures caused by the new IPS and other measures that resulted in agencies more closely scheduling their staff, resulting in staff being late more often for visits and rushing through work.

A third measure where significant decreases in satisfaction were found post-BBA was the amount of skilled services received. This finding may suggest the need to more closely examine if the disabled Medicare beneficiary's desire for skilled nursing and therapy services were based in areas where more skilled services would be appropriately provided under the Medicare program.

One quality of life measure was also significantly lower post-BBA. There was more dissatisfaction with personal care arrangements post-BBA, with a substantial percentage, 28%, feeling their personal care needs were not being met. These concerns may not be able to be accommodated within the current Medicare home health benefit but may identify important perceived needs of the disabled population.

Comparison of the satisfaction of disabled Medicare beneficiaries with that of aged beneficiaries indicated that the disabled were a more critical, less satisfied group. Because they are younger, more disabled, and likely more assertive about articulating their dissatisfaction, they express significantly more dissatisfaction with various aspects of their care and with life in general. In addition, because they are by definition chronically disabled when most of their age group is functional, they may have greater expectations than the aged that receiving more care would be beneficial in increasing their functional level.

Analysis of the factors affecting satisfaction did not identify any variables that seemed to have a consistent significant effect. The one exception was a characteristic of the interview (i.e., whether the responses came from a proxy or the beneficiary) with proxy respondents expressing more dissatisfaction.

Satisfaction studies are always plagued by the inability to determine if beneficiaries' expectations are appropriate when dissatisfaction is found. This is especially true in this study, which examines these levels before and after a major contraction in services provided, and especially for a service that was widely believed to be overprovided pre-BBA. On balance, however, in spite of substantial reductions in service provision, beneficiary satisfaction has remained at high levels during the period of the interim payment reimbursement. This augurs well for satisfaction levels under the current PPS system where payments are adjusted for the severity of the home health user's condition.

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# APPENDIX 1. SUMMARY TABLE: MEDICARE HOME HEALTH PATIENT SURVEY

Survey Section <sup>a</sup>	General Overview	Specific Questions <sup>b</sup>
<b>S. INTRODUCTION</b>	Script for interviewer to use to start the phone call	<ul style="list-style-type: none"> <li>• Identifies whether patient or proxy will participate.</li> <li>• If proxy respondent, identifies the gender of the patient and whether the patient is deceased.</li> </ul>
AA. Patient Information	Collects very general information about the patient	Identifies: <ul style="list-style-type: none"> <li>• Whether the patient is deceased</li> <li>• Patient's gender</li> <li>• Whether patient or proxy respondent</li> <li>• Whether patient lives in nursing home</li> <li>• Whether patient is in a coma</li> </ul>
A. Service Use Prior to Home Health Episode	Collects information about the patient's health care utilization during either the month before the start of the home health episode or prior to the patient's hospital stay immediately preceding the home health episode.	<ul style="list-style-type: none"> <li>• Marital status of patient</li> <li>• Whether patient was in the hospital immediately before the HH episode</li> </ul> During the month before the HH episode or before the hospital stay preceding the HH episode, identifies whether: <ul style="list-style-type: none"> <li>• Patient was in a nursing home</li> <li>• Patient lived in an assisted-living facility</li> <li>• Patient used adult day care program</li> <li>• Patient received home-delivered meals</li> <li>• Non-Medicare nurse or aide/homemaker/maid came to patient's home</li> <li>• Family members or friends (unpaid) helped with personal care; whether unpaid family members or friends who helped/lived in the same household with patient</li> </ul>
B. Home Health Episode	Collects very general information about the home health episode (more specific information is collected in sections C & D)	<ul style="list-style-type: none"> <li>• Verify home health discharge date or that patient is still receiving home health care</li> <li>• Determines whether a home health aide came to patient's home during current/most recent home health episode; if yes, identifies services provided by aide</li> </ul>
C. Service Use During Home Health Episode and Information Caregiver Characteristics	Collects information about non-Medicare home health service use during episode, as well as demographic information about the primary (informal) caregiver	Identifies whether during home health episode: <ul style="list-style-type: none"> <li>• Patient lived in assisted-living facility</li> <li>• Patient attended adult day care</li> <li>• Patient received home-delivered meals</li> <li>• Non-Medicare nurse came to patient's home; if yes, identifies source of payment</li> <li>• Non-Medicare aide/homemaker/maid came to patient's home; if yes, identifies services provided and the source of payment</li> <li>• Family members and friends (unpaid) helped with personal care, housework, or transportation; identifies types of personal care; identifies whether these friends/family members lived with patient</li> <li>• Specifically identifies whether family or friends <u>not living</u> with patient helped with personal care or transportation</li> <li>• Identifies family member or friend who did most of the care and collects information about this person (age, health status/level of disability)</li> </ul>

Survey Section <sup>a</sup>	General Overview	Specific Questions <sup>b</sup>
D. Service Use in Last Two Weeks If Still Receiving Care	Identifies non-Medicare home care services, in last two weeks, for patients still receiving Medicare home health	<p>During the last two weeks:</p> <ul style="list-style-type: none"> <li>• Non-Medicare nurse came to patient's home; number of times</li> <li>• Non-Medicare aide/homemaker/maid came to patient's home; number of times; types of services provided (bathing, getting up, going to bed) and frequency (number of days)</li> <li>• Family or friends (not living with patient) came to patient's home to help with personal care, housework or transportation; number of times</li> <li>• Family or friends (paid or unpaid) helped with specific activities of daily living (ADLs), i.e., bathing, getting up, or going to bed; frequency for each type of service (number of days)</li> </ul>
E. Services After Discharge	Identifies non-Medicare services following discharge from the Medicare home health episode	<p>Identifies whether following discharge from home health:</p> <ul style="list-style-type: none"> <li>• Patient lived in assisted-living facility</li> <li>• Patient attended adult day care</li> <li>• Patient received home-delivered meals</li> <li>• Non-Medicare nurse came to patient's home; identifies source of payment</li> <li>• Non-Medicare aide/homemaker/maid came to patient's home; identifies source of payment</li> <li>• Family or friends (unpaid) came to help with personal care, housework, or transportation; identifies whether they live with patient</li> </ul> <p>During the most recent two weeks:</p> <ul style="list-style-type: none"> <li>• Non-Medicare nurse came to patient's home; frequency of visits</li> <li>• Non-Medicare aide/homemaker/maid came to patient's home; frequency of visits</li> <li>• Family or friends (unpaid) <u>who do not live with patient</u> came to help with personal care or transportation; frequency of visits</li> </ul>
F. Nursing Home Services	Records information about nursing home utilization since the start of the home health episode	<p>Records whether:</p> <ul style="list-style-type: none"> <li>• Patient has ever been a nursing home resident</li> <li>• If patient admitted to NH since the start of the HH episode, identifies: number of NH admissions during the time period; admission/discharge dates; whether private insurance covered any of the costs; amount of patient out-of-pocket spending for NH stay(s)</li> </ul>
G. Patient Satisfaction	Measures patient satisfaction generally and with Medicare home care	<ul style="list-style-type: none"> <li>• General satisfaction with life</li> <li>• Satisfaction with current personal care arrangements</li> <li>• General satisfaction with care from HHA; level of satisfaction</li> <li>• Would recommend HHA to family or friends</li> <li>• Nurses and therapists: were careful and thorough in examination and treatment; provided good education about care; gave clear explanations of medical conditions and treatment; came often enough</li> <li>• Nursing and therapy visits were long enough</li> <li>• Staff: provided reassurance and emotional support; paid attention to patient; arrived three or more hours late, or failed to come; rushed through work; encouraged patient independence</li> <li>• Aides: completed all of their work (identifies why this might not have been the case); came often enough</li> <li>• Discharge occurred at the appropriate time</li> <li>• Needed other home services after discharge that were not available; identifies whether this was a major problem</li> <li>• Identifies respondent (patient or proxy)</li> </ul>

Survey Section <sup>a</sup>	General Overview	Specific Questions <sup>b</sup>
H. Health and Functional Status of Patient	Collects self-reported or proxy-reported health and functional status information for patients (survey omits patients who were deceased or in a coma at the time of the survey from this set of questions)	<ul style="list-style-type: none"> <li>• Rating of overall health</li> <li>• Highest level of education completed</li> <li>• Total income for 1999</li> </ul> <p>During the past 2 weeks:</p> <ul style="list-style-type: none"> <li>• Number of days patient confined to bed</li> <li>• Patient was able to get out bed or chair without help; someone usually stayed in the room in case patient needed help getting out of bed or chair; someone usually lifted patient out of bed or chair; patient <u>could</u> have gotten out of bed or chair on his/her own. (ADL Transferring)</li> <li>• Patient walked indoors or always used a wheelchair without help. (ADL Ambulation)</li> <li>• If patient walked: someone usually stayed with patient in case s/he needed help walking; patient <u>could</u> have walked indoors without help; identifies whether patient usually used equipment (walker, cane, crutches) to walk. (ADL Ambulation)</li> <li>• If patient used a wheelchair: someone usually pushed wheelchair indoors; patient <u>could</u> have pushed wheelchair without help. (ADL Ambulation)</li> <li>• Patient usually fed his/herself without help; someone usually stayed in the room in case patient needed help, cut the food for the patient, or fed the patient; patient <u>could</u> have fed his/herself without help. (ADL Feeding)</li> <li>• Patient needed help with bathing; someone stayed near by in case s/he needed help bathing; someone usually bathed patient; patient <u>could</u> have bathed him/herself without help. (ADL Bathing)</li> <li>• Patient needed help measuring out medicines; someone reminded patient to take medications; someone usually helped patient take medicine, gave injections, or applied ointments/other medications; patient <u>could</u> have taken medicine without help. (ADL Medications)</li> </ul>
I. Beneficiaries Under 65	Collects work/volunteer information for the disabled population	<ul style="list-style-type: none"> <li>• Verifies that patient was under age 65 at time of home health admission</li> <li>• Prior to admission, patient worked/volunteered for at least one year; if yes, records whether: (1) patient considered him/herself disabled while working; (2) patient worked for pay or volunteered; and (3) whether the patient worked/volunteered full- or part-time</li> <li>• Records whether (because of disability): patient needed special transportation to go to work; or special accommodations were made at work for patient</li> <li>• Patient anticipates going back to work/volunteering in the future; if yes, records whether (beyond what the patient was using before): (1) patient would need special transportation to enable him/her to go to work/volunteer; or (2) special accommodations would need to be made at work for patient.</li> </ul>
J. Respondent	Clarifies who responded to the survey and the relationship to the patient	<ul style="list-style-type: none"> <li>• Identifies whether patient or proxy was respondent</li> <li>• If respondent, identifies proxy's relationship to patient and proxy's gender</li> </ul>
<p>a. The letters at the beginning of each row denote the specific sections of the survey.</p> <p>b. Order presented does not necessarily follow the order of the questions in each section of the survey.</p>		

## **APPENDIX 2. HOME HEALTH AGENCY REPLACEMENT METHODOLOGY**

For the home health agency (HHA) survey, it was necessary to replace agencies from the original CMS Per-Episode Home Health Prospective Payment Demonstration that were either inactive or that refused participation in the survey. A list of possible replacement HHAs was created for each “missing” HHA, based on how well the replacement criteria matched the characteristics of the missing HHA. Agency characteristics were determined from two data sources: (1) CMS Provider of Service (POS) data on active and inactive HHAs and (2) Medicare cost report data. The following agency characteristics for matching were used in the order indicated:

1. State
2. Urban/rural
3. For-profit/non-profit
4. Hospital-based/not hospital-based

All replacement candidates that matched on these criteria were ordered based on the following additional indicators:

5. Number of Medicare visits
6. Number of visits per patient

Each replacement agency candidate was assigned a rank based on the differences between the missing HHA and the candidate HHA on the number of Medicare visits and the number of visits per patient. The smallest differences resulted in the highest rank. The rank was constructed so that similarity on “number of visits” received twice the weight of similarity on “visits per patient.”

The following types of HHAs were excluded from the sampling frame for replacement:

1. Inactive HHAs;
2. Governmental HHAs;
3. HHAs based in a rehabilitation facility or in a skilled nursing facility; and
4. HHAs certified to participate in Medicare after January 1, 1992.

## APPENDIX 3. DEFINITIONS OF DEPENDENT VARIABLES

Variable	Survey Question	Response
<b>SATISFACTION</b>		
<b>Overall</b>		
Satisfied with care received from agency	G5: All things considered, are you satisfied or dissatisfied with the Medicare home health care (you/PATIENT) (have/has) (been receiving from AGENCY since ADMISSION DATE/received from AGENCY between ADMISSION DATE and DISCHARGE DATE/received from AGENCY during the episode of home health care that began on ADMISSION DATE)?	Satisfied <sup>a</sup>
Would recommend agency to friend or family	G7: Would you recommend AGENCY to a friend or family member who needed home health care?	Yes
<b>Discharge</b>		
Discharged too soon	G23: Do you think that (you were/PATIENT was) discharged too soon, too late, or was the timing of the discharge about right?	Too Soon
Needed home services after discharge--not available and a big problem	G24: Just after (your/PATIENT's) Medicare home health services from AGENCY ended, did (you/PATIENT) need other home services that were not available at that time?	Yes
	G24: Was not having these services a big problem for (you/PATIENT)?	Yes
<b>AGENCY STAFF</b>		
<b>All Staff</b>		
Did not arrive late	G13: (Do/Did) staff from AGENCY arrive three or more hours late or fail to come at all?	Little or none of the time <sup>b</sup>
Did not rush through work	G14: (Do/Did) you feel that the staff from AGENCY (rush/rushed) through their work too quickly?	Little of none of the time <sup>b</sup>
Encouraged independence	G26: The staff from AGENCY encouraged (me/PATIENT) to be independent and to take care of (myself/herself/himself).	Strongly Agree <sup>c</sup>
Provided reassurance and emotional support	G10: How would you rate the reassurance and emotional support offered to (you/PATIENT) by the staff from AGENCY?	Excellent <sup>d</sup>
Paid attention to patient	G12: (Do/Did) the staff from AGENCY pay attention to what (you/PATIENT) (have/has/had) to say?	All of the time <sup>b</sup>
<b>Aides</b>		
Completed all work	G18: (Do/Did) aides from AGENCY complete all the work they (are/were) supposed to?	All of the time <sup>b</sup>
Did not come often enough	G20: Do you think that the home health aides from AGENCY (come/came) often enough to meet (your/PATIENT's) needs?	Yes
<b>Nurses and Therapists</b>		

Variable	Survey Question	Response
Did not come often enough	G16: Do you think that the nurses and therapists (come/came) often enough to meet (your/PATIENT's) needs?	No
Were careful and thorough in examination and treatment	G8: How careful and thorough were the nurses and therapists from AGENCY in examining and treating (you/PATIENT)?	Excellent <sup>d</sup>
Visits long enough all of the time	G15: (Are/Were) nursing and therapy visits long enough for (you/her/him) to get the care (you/she/he) needed?	All of the time <sup>b</sup>
Gave clear explanations of medical condition and treatment	G11: (Do/Did) the nurses and therapists from AGENCY give clear explanations of (your/PATIENT's) medical condition and treatment?	All of the time <sup>b</sup>
Provided excellent teaching about care	G9: How good were the nurses and therapists from AGENCY at teaching (you/PATIENT) or (your/her/his) family and friends about (your/her/his) care?	Excellent <sup>d</sup>
<b>QUALITY OF LIFE</b>		
Satisfied with life	G3: In general, how satisfied (are you/is PATIENT) with (your/her/his) life today?	Satisfied <sup>e</sup>
Satisfied with present care arrangements	G4: In general, how satisfied are you with the present arrangements for (your/PATIENT's) personal care (housecleaning, meals, laundry, and shopping)?	Satisfied <sup>e</sup>
<p>SOURCE: Surveys of Medicare home health care beneficiaries.</p> <p>a. Response categories were: satisfied, dissatisfied.</p> <p>b. Response categories were: all of the time, most of the time, some of the time, and little or none of the time.</p> <p>c. Response categories were: strongly agree, agree, disagree, and strongly disagree.</p> <p>d. Response categories were: poor, fair, good, very good, and excellent.</p> <p>e. Response categories were: satisfied, partly satisfied, dissatisfied.</p>		

## APPENDIX 4. DEFINITIONS OF INDEPENDENT VARIABLES

Variable Name	Definition
<b>POST-BBA</b>	Admissions to home health March-July 2000. Pre-BBA data includes admissions to home health January-August 1997 <sup>a</sup>
<b>Demographic</b>	
Age Under 65 65-74 75-84 85 and older	Age at home health admission <sup>b</sup>
Male	Male <sup>b</sup>
Non-White	Race not White <sup>b</sup>
State Medicaid buy-in <sup>c</sup>	Any months within 120 days following admission having state Medicaid buy-in <sup>b</sup>
Married	Married prior to home health admission (survey question A8) <sup>a</sup>
Income \$20,000 and over	Total income received from all sources for the previous year $\geq$ \$20,000 (survey question H26) <sup>a</sup>
Patient was survey respondent	Patient was survey respondent (survey interviewer screen G27) <sup>a</sup>
<b>Availability of Informal Care at Admission</b>	
Non-Medicare paid help in month prior to admission	Aide, homemaker, or maid not paid by Medicare helped with personal care or things around the house in month prior to admission (survey question A7) <sup>a</sup>
Unpaid help from family/friends in month prior to admission	Unpaid help from family members or friends with personal care, things around the house, or transportation in the month prior to admission (survey question A9) <sup>a</sup>
<b>Prior Medicare Use</b>	
In hospital or SNF 2 weeks prior to home health admission	Medicare in-patient hospital or SNF admission during 14 days prior to home health admission <sup>d</sup>
In-patient admissions 6 months prior to admission	Medicare in-patient hospital admission during the 6 months prior to home health admission <sup>d</sup>
<b>Diagnoses at Admission</b>	Having a primary or first secondary home health diagnosis at admission with the following ICD-9 codes: <sup>d,e</sup>
Diabetes	ICD-9 code: 250
Cerebrovascular disease	ICD-9 codes: 430-438
Cancer	ICD-9 codes: 140-199
<b>Functional Limitations at Admission</b>	Inability to perform activities of daily living at admission <sup>e</sup>

Variable Name	Definition
Bathing	Not able to bathe self in shower or tub independently
Eating	Not able to independently feed self
Dressing	Not able to obtain, put on, or remove clothing or shoes without assistance
Toileting	Not able to get to and from the toilet independently with or without a device
Transferring	Not able to independently move from bed to chair, on and off toilet or commode, into or out of tub or shower, or turn and position self in bed if bedfast
Number of ADLs	Number of ADLs (bathing, eating, dressing, toileting, transferring)
<b>Agency Characteristics</b>	Characteristics of the agency to which the beneficiary was admitted
Agency for-profit	Type of agency control is proprietary <sup>f</sup>
<b>Community</b>	
General	
Urban	Metropolitan county as defined by Urban/Rural continuum code (Economic Research Service, U.S. Department of Agriculture) <sup>h</sup>
State California Florida Illinois Massachusetts Texas	State in which agency is based <sup>f</sup>
Historical Medical Use	
County Pt. A/B reimbursement per beneficiary (1000s)	1991 total reimbursement Medicare Part A and Part B divided by total enrollment Part A and/or Part B / 1000 <sup>h</sup>
<p>a. From surveys of home health beneficiaries.</p> <p>b. From Medicare Denominator File.</p> <p>c. State Medicaid buy-in beneficiaries include both those who have full Medicaid eligibility and those for whom Part B Medicare premiums are paid but are not eligible for Medicaid services.</p> <p>d. From Medicare Standard Analytic Files.</p> <p>e. From patient assessment data: Home Health PPS Demonstration Quality Assurance data for the PRE period, and OASIS data for the POST period</p> <p>f. Home Health PPS Demonstration data (from base year cost reports and Abt enrollment file) in the PRE period, and CMS Provider of Services file in the POST period.</p> <p>g. Home Health PPS Demonstration data (from base year cost reports and Abt enrollment file) in the PRE period, and CMS Cost Report extract in the POST period.</p> <p>h. From Area Resource File.</p>	