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# Disabled Medicare Beneficiaries by Dual Eligible Status: California, 1996-2001

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*This highlight describes the characteristics and inpatient utilization of under age 65 disabled California Medicare beneficiaries by dual eligible status (i.e., Medicaid State buy-in coverage or not). More disabled dually eligible beneficiaries are younger, non-White, and in fee-for-service (FFS) than non-dually eligible beneficiaries. Disabled dually eligible beneficiaries experienced consistently higher hospitalization rates and average length of stay (LOS) than non-dually eligible beneficiaries from 1996 to 2001. Inpatient days remain higher among dually eligible beneficiaries when stratified by the system of care, age, sex, or race. In addition, the hospitalization rate of disabled dually eligible beneficiaries was higher for most diagnoses, but how much higher varied by condition.*

## INTRODUCTION

The fastest-growing segment of the Medicare population are disabled beneficiaries—those under age 65 who are entitled to Medicare because they receive Social Security or Railroad Retirement Board disability benefits. The under age 65 disabled have grown steadily from less

than 10 percent of the Medicare population in 1990 to about 14 percent in 2005 and are expected to reach 7.6 million or nearly 17 percent of the Medicare population by 2010 (Briesacher et al., 2002; Cubanski et al., 2005).

People with disabilities face a variety of challenges due to their substantial health care needs, varying sources of insurance coverage, and generally low incomes and limited education (Gold and Stevens, 2001; Hanson et al., 2003a,b). Unlike the majority of Medicare beneficiaries who are elderly and became entitled to Medicare due to age, disabled Medicare beneficiaries under age 65 are more likely to be males from a racial/ethnic minority (Centers for Medicare & Medicaid Services, 2002). Not surprisingly, their health status differs as well with 27 percent of non-institutionalized disabled beneficiaries reporting poor health compared to 5 to 6 percent of non-institutionalized elderly beneficiaries (Cubanski et al., 2005). In addition, although about 26 percent of all Medicare beneficiaries have a cognitive or mental impairment, the proportion rises to nearly 60 percent when limited to the under age 65 disabled (Cubanski et al., 2005). With respect to supplemental insurance, over one-third of the under age 65 disabled Medicare population in the U.S. receives Medicaid benefits or is dually eligible compared to less than 10 percent of the elderly (Briesacher et al., 2002; Murray and Eppig, 2002). While the characteristics and vulnerability of the under age 65 disabled Medicare population has been documented relative to aged beneficiaries, less is known about

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their health services utilization, in particular, by dual eligible status. Recent research suggests that certain policy changes, such as the lock-in provision that limits disenrollment from Medicare managed care plans and the prescription drug benefit, may have left this already vulnerable group at risk for unintended negative consequences (Briesacher et al., 2002; Mobley et al., 2005).

Disabled beneficiaries under age 65 must meet different eligibility criteria than the vast majority of the elderly who simply become entitled to Medicare once they reach age 65. In 1972, legislation was enacted to expand Medicare coverage to the under age 65 disabled population. Before becoming Medicare eligible, however, a disabled person must first qualify for the Social Security Disability Insurance (SSDI) program and receive payment for 5 months after their disability is determined to have begun. This is followed by a 24-month waiting period before Medicare coverage can begin. There are only two exceptions to the waiting period that apply: (1) people with end-stage renal disease (ESRD) and (2) people with Lou Gehrig's disease or amyotrophic lateral sclerosis (Dale and Verdier, 2003). Other individuals qualify for SSDI benefits as disabled adult children (those people disabled before age 22 who are dependents or survivors of retired or disabled workers) or as disabled widows or widowers.

Dually eligible beneficiaries are generally defined as those persons who qualify for both Medicare and Medicaid benefits. As a result, these beneficiaries encompass a broad category of individuals as some Medicare beneficiaries are only entitled to Part A (hospital insurance) or Part B (supplemental medical insurance), while others have both. These different subgroups are eligible for varying levels of Medicaid benefits (Centers for Medicare & Medicaid

Services, 2006; Kulkarni, 2006; Schneider et al., 2003). Here, we use the term dually eligible referring to non-elderly disabled beneficiaries entitled to both Medicare Parts A and B, who receive Medicaid benefits as classified by their State buy-in coverage. State buy-in coverage indicates that the Medicare Part B premium is paid by the State Medicaid Program, which in California is Medi-Cal (Barosso, 2006; Ettner, 1998). If a State does not pay Medicare premiums for all dually eligible beneficiaries, using a State buy-in indicator as a proxy for dual eligibility would result in undercounting and potentially biased estimates (Barosso, 2006; Baugh, 2004-2005). In California, however, the State buy-in indicator is a good proxy for dual eligibility, because Medi-Cal automatically pays Medicare Part B premiums for all Medi-Cal beneficiaries who have Medicare Part B entitlement as part of a buy-in agreement with CMS (California Department of Health Services, 2007). However, the method of identifying dually eligible beneficiaries used here may not be valid for research on those in other States.

Our previous research, as well as other studies, indicates that among Medicare recipients, the inpatient utilization of dually eligible beneficiaries is substantially higher than that of non-dually eligible beneficiaries at all ages and that utilization varies by system of care (Dhanani et al., 2004; Medicare Payment Advisory Commission, 2004; Sloss et al., 2004). Whether these differences persist for the under age 65 disabled is unknown. This highlight addresses three related questions. First, do the characteristics of under age 65 disabled Medicare beneficiaries differ by their dual eligible status? Second, how do rates of inpatient utilization compare between the two groups? Third, are there differences between these two groups in the reasons for hospitalization?

## METHODS

The data for this study were derived from linking Medicare enrollment data on all beneficiaries in California between January 1996 and December 2001 from CMS' Denominator Files to inpatient discharge data for short-term stays from the California Office of Statewide Health Planning and Development. All non-Federal hospitals in California submit discharge records to the State agency irrespective of payer source. Social Security number served as the starting point for the linkage and therefore if it was missing from either the Medicare data or discharge data, the record was dropped (< 2 percent of records from either file). Records were linked using probabilistic matching based on Social Security number, ZIP Code of residence, date of birth, date of death, sex, and race/ethnicity (Fellegi, 1985; Fellegi and Sunter, 1969; Jaro, 1989; Newcombe, 1988). The level of agreement between Social Security numbers in the final linked file was nearly 99 percent. The linkages were performed by Health Information Solutions with approvals from the Committee for the Protection of Human Subjects, California Health and Human Services Agency, and the University Park Institutional Review Board, University of Southern California, under a CMS data use agreement between all parties with access to the confidential data. The linked data were returned to the University of Southern California after all potential identifiers were stripped.

The initial sample included all Medicare beneficiaries under age 64 and covered by Parts A and B, a requirement of health maintenance organization (HMO) enrollment, in California between 1996 and 2001. Age was restricted to less than 64 years, because our data set did not include birth date. This age cutoff ensured exclusion

of utilization by beneficiaries entitled to Medicare due to age. Beneficiaries from counties with less than 500 HMO enrollees during the year of interest were excluded to create more comparable comparison groups since many FFS beneficiaries reside in counties with few or no HMO enrollees. In addition, beneficiaries with ESRD were excluded because of specific policies that reduce the waiting period for Medicare entitlement and restrict HMO enrollment for this subgroup (Dale and Verdier, 2003; Shapiro et al., 2003). Finally, beneficiaries under age 18 were excluded (< 0.01 percent). Analyses were stratified by dual eligible status providing two mutually-exclusive comparison groups in each year. Beneficiaries were designated as dually eligible for a given year if they had State buy-in coverage for at least 1 month during that year. As previously discussed, because not all States have a buy-in agreement with CMS, this methodology may not be valid in other States. Demographic characteristics were tabulated for the two groups based on CMS enrollment data. Three measures of inpatient hospital utilization were calculated for the two groups: (1) total inpatient days (per 1,000), (2) the discharge rate (per 1,000), and (3) average LOS in days. The unit of analysis for the hospital utilization measures was person-year. For hospitalized beneficiaries, discharge rates were calculated for all diagnoses and by major diagnostic category (MDC) for dual and non-dually eligible beneficiaries (California Office of Statewide Health Planning Development, 2004). There were no hospitalizations for two of the 25 MDCs (pregnancy, childbirth and the puerperium, and newborns and other neonates with conditions originating in the perinatal period). Therefore, discharge rates are presented for 23 MDCs and an ungroupable category.

## RESULTS

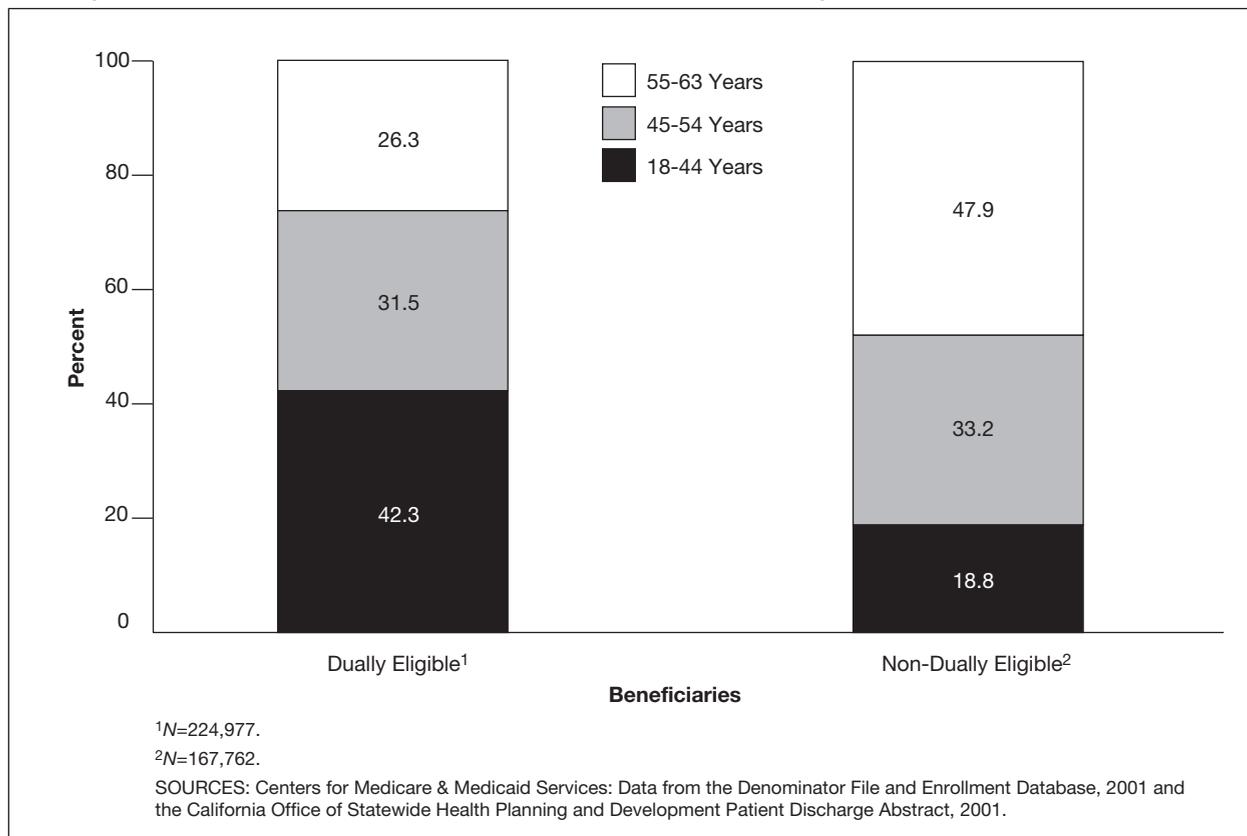
The final sample of disabled beneficiaries yielded 224,977 dually eligible beneficiaries and 167,762 non-dually eligible beneficiaries in 2001. Figure 1 shows dually eligible beneficiaries are younger (42.3 percent age 18 to 44) than non-dually eligible beneficiaries (47.9 percent age 55 to 63). Figure 2 presents the breakdown by race, with a smaller proportion of dually eligible beneficiaries categorized as White than of non-dually eligible beneficiaries (65.8 versus 76.1 percent). Figure 3 shows the percent of both groups by HMO and FFS enrollment. Only 8.0 percent of dually eligible beneficiaries were enrolled in an HMO in contrast to about one-third (34.4 percent) of non-dually eligible beneficiaries.

Figures 4 and 5 present the discharge rate and average LOS, respectively, for both groups from 1996 to 2001. Throughout the period, dually eligible beneficiaries have consistently higher discharge rates than non-dually eligible beneficiaries, with the difference in any given year ranging from 56 to 112 discharges per 1,000 beneficiaries (Figure 4). Dually eligible beneficiaries also have longer average LOS throughout the period, with a difference between the two groups of about 1 day.

The mean inpatient days for the two groups by FFS and HMO enrollment in 2001 is shown in Figure 6. Within FFS, dually eligible beneficiaries have 57 percent more inpatient days when compared to non-dually eligible beneficiaries (1,939 versus 1,231 per 1,000). Among those belonging to an HMO, dually eligible beneficiaries still have 30 percent more inpatient

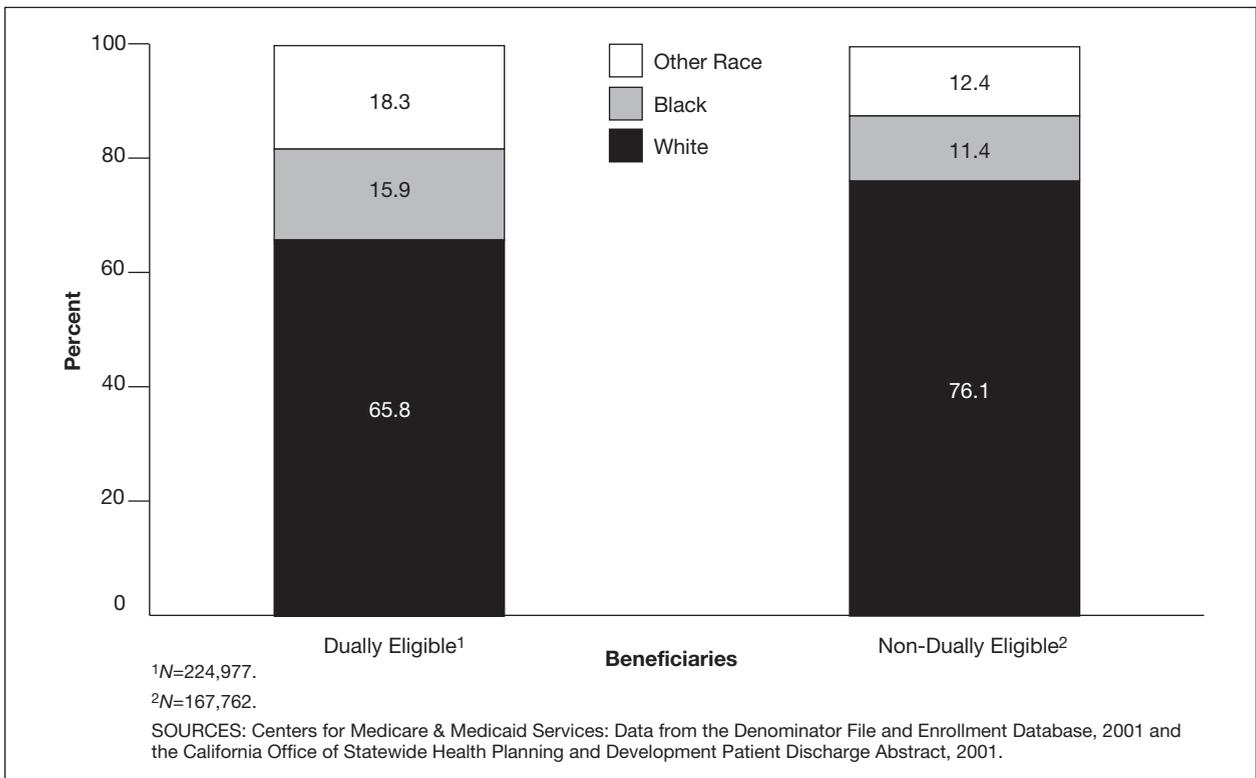
**Figure 1**

**Age Distribution of Disabled Medicare Beneficiaries, by Eligibility Status: California, 2001**



**Figure 2**

**Racial Distribution of Disabled Medicare Beneficiaries, by Eligibility Status: California, 2001**



**Figure 3**

**System of Care Distribution of Disabled Medicare Beneficiaries, by Eligibility Status: California, 2001**

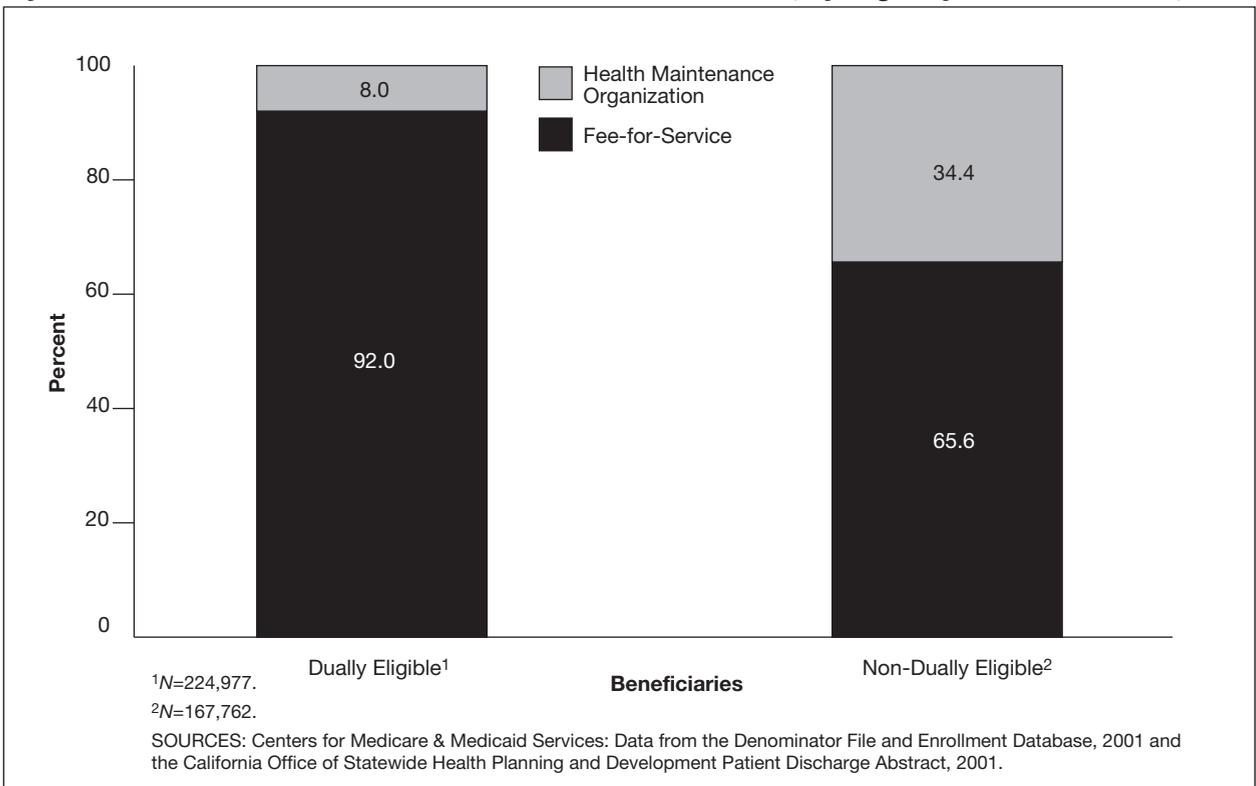
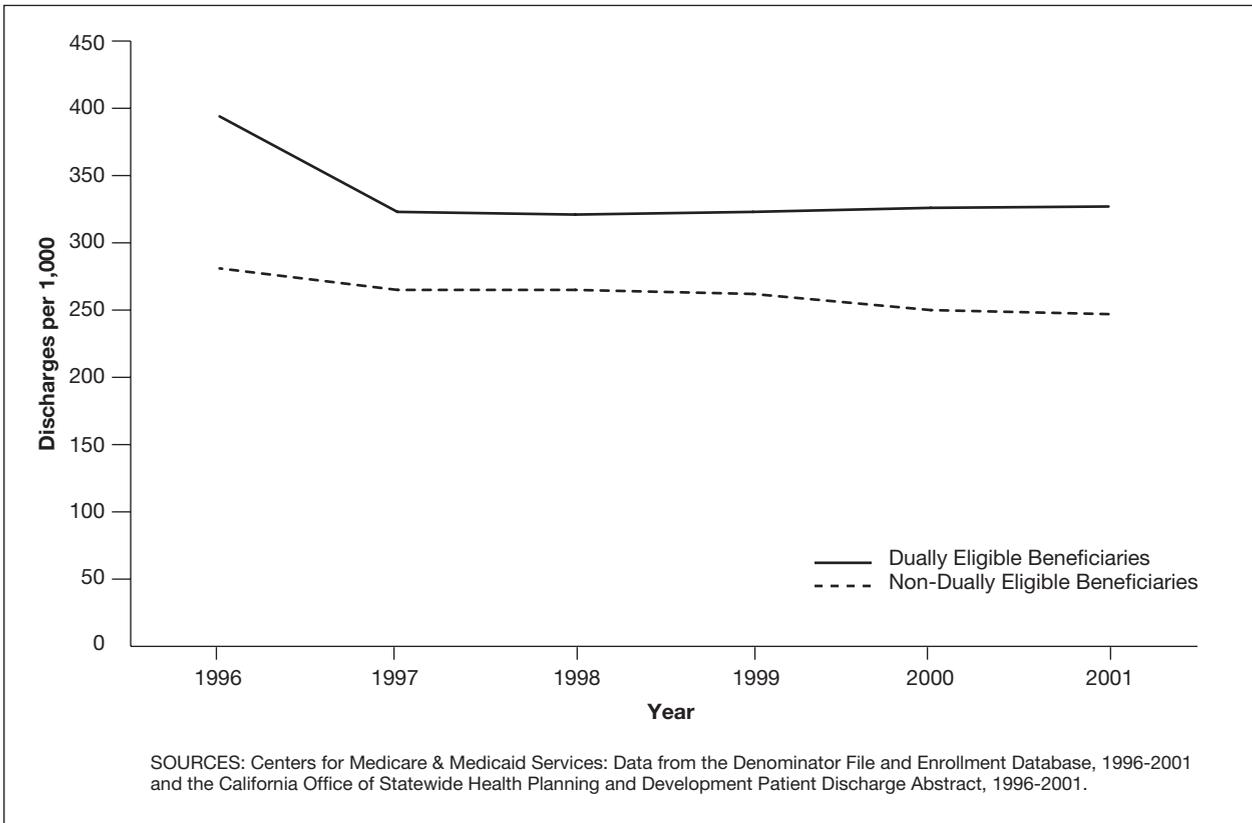


Figure 4

Discharge Rate for Disabled Medicare Beneficiaries, by Eligibility Status: California, 1996-2001

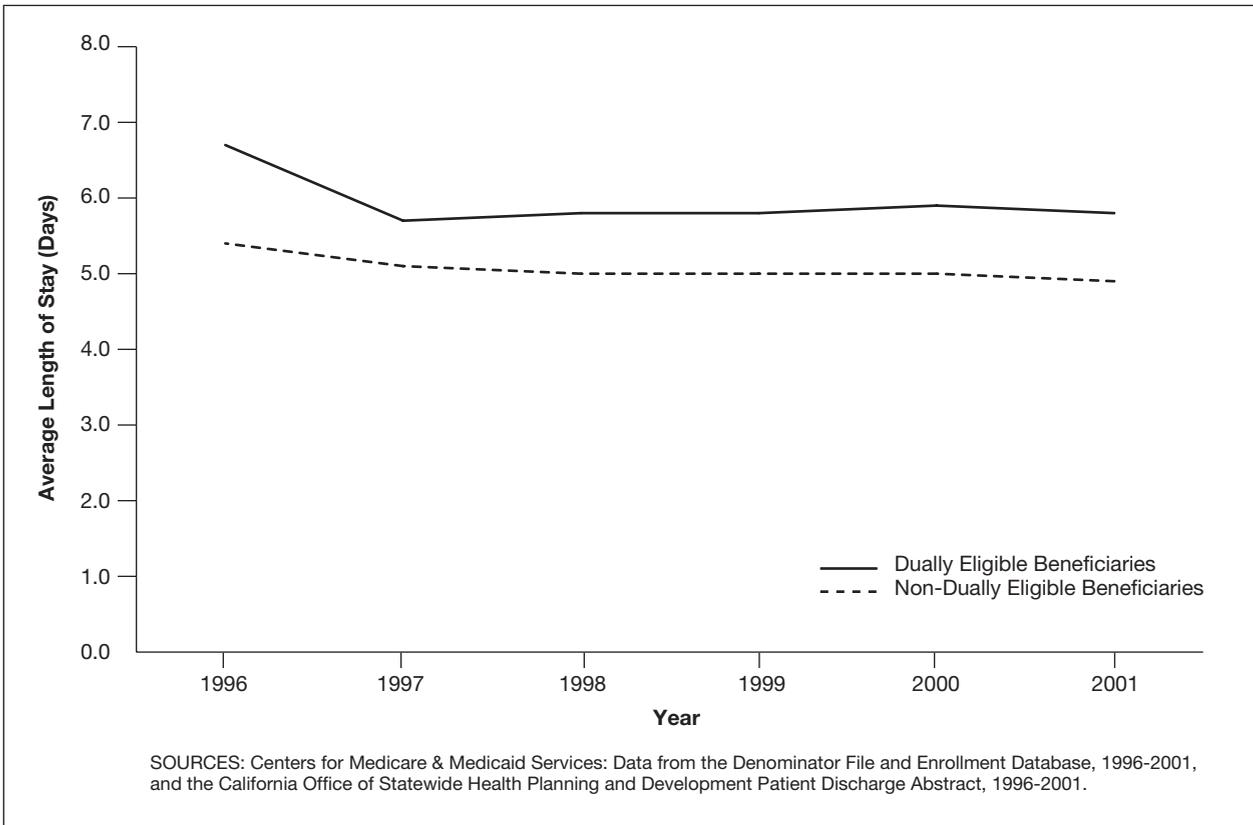


days than non-dually eligible beneficiaries (1,543 versus 1,190 days per 1,000), but fewer inpatient days than FFS. Figure 7 shows inpatient days increase with age, especially for dually eligible beneficiaries (1,344 for beneficiaries age 18-44, 2,086 for age 45-54, and 2,686 for age 55-63). Female and male dually eligible beneficiaries have 58 and 54 percent more inpatient days, respectively, than their counterparts (Figure 8). Figure 9 shows when stratified by race, dually eligible beneficiaries have consistently more inpatient days than non-dually eligible beneficiaries with the difference being greatest for those classified as Black (2,383 versus 1,200 days per 1,000, respectively).

Table 1 presents a comparison of the discharge rate by MDC for the two groups. Overall, the discharge rate among dually eligible beneficiaries is 26 percent higher than their counterparts. The discharge rate of dually eligible beneficiaries is greater than that of their counterparts for all but three of the MDCs. For three MDCs (human immunodeficiency virus infections, burns, and mental diseases and disorders), the discharge rate of dually eligible beneficiaries is more than twice that of non-dually eligible beneficiaries. However, despite these large differentials between the two groups, the numbers of discharges on which these three rates are based are relatively small.

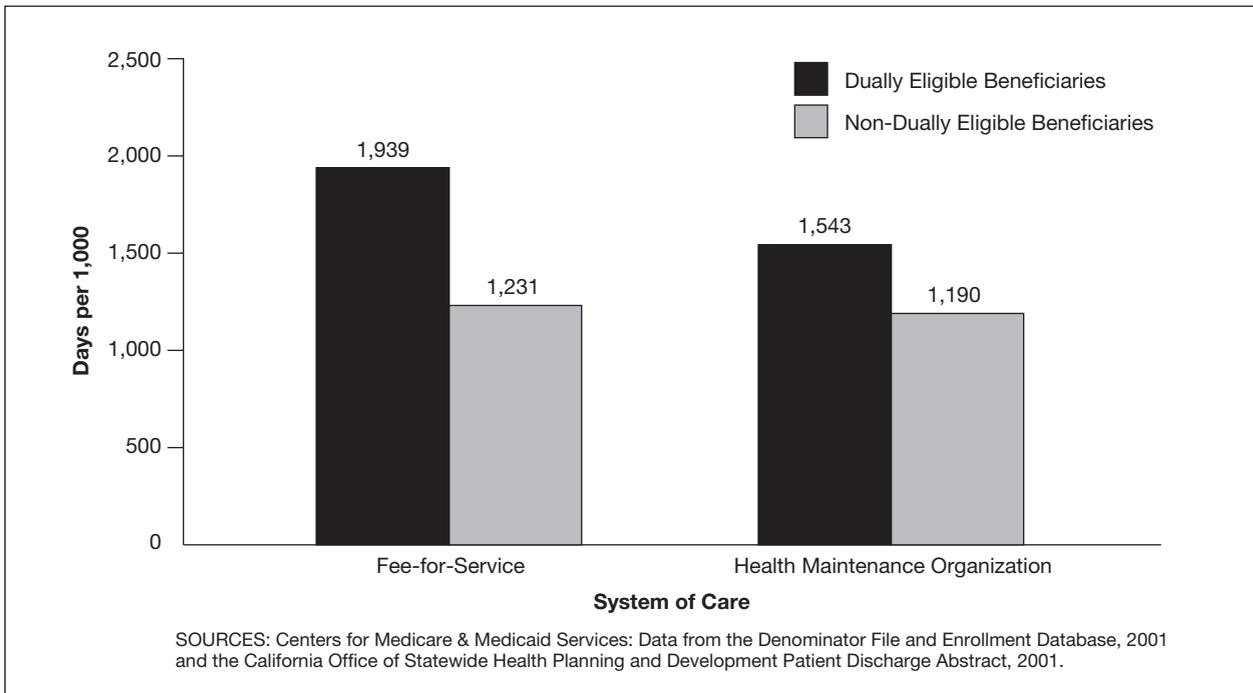
**Figure 5**

**Average Length of Stay for Disabled Medicare Beneficiaries, by Eligibility Status: California, 1996-2001**

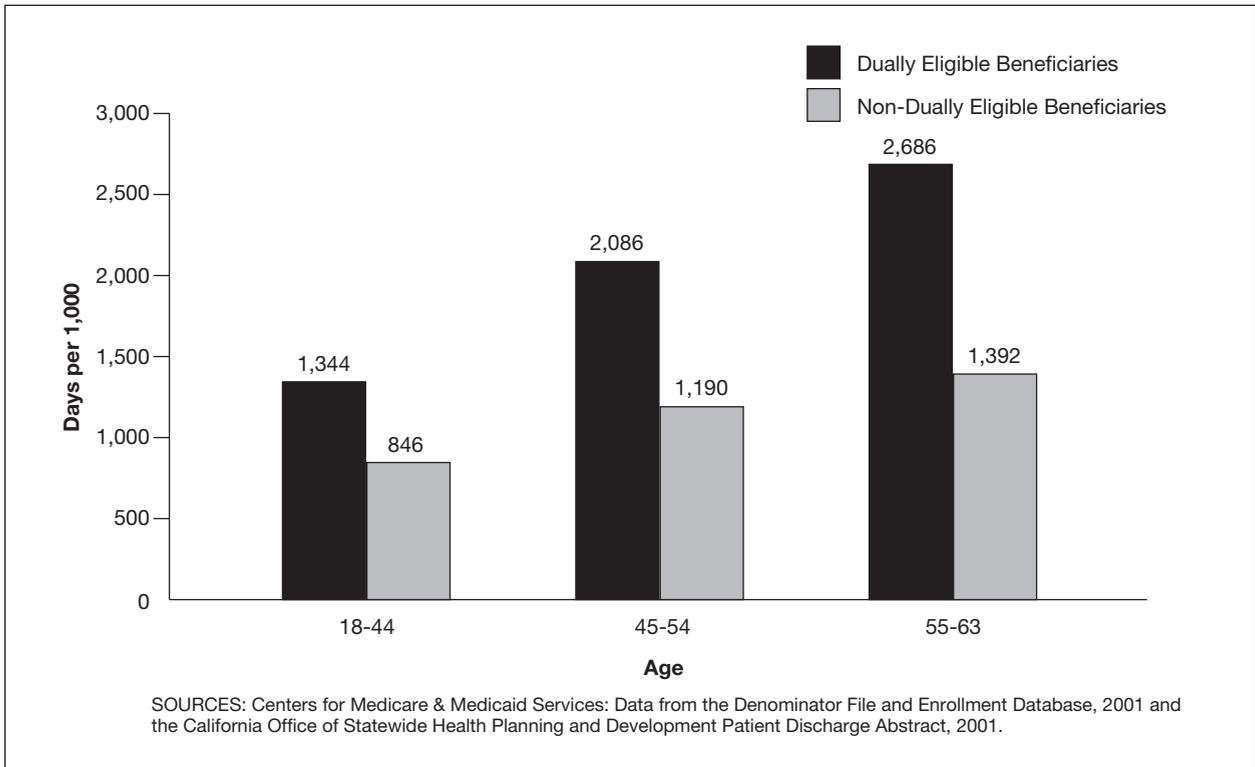


**Figure 6**

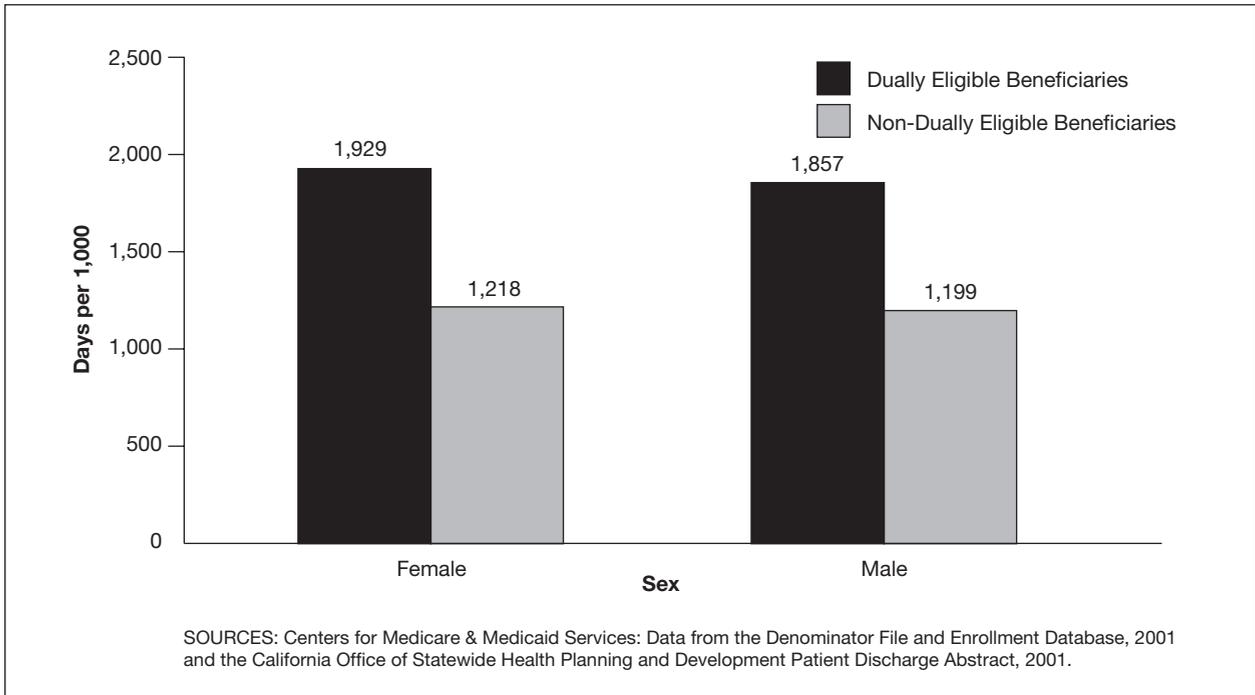
**Mean Inpatient Days, by System of Care for Disabled Dually and Non-Dually Eligible Medicare Beneficiaries: California, 2001**



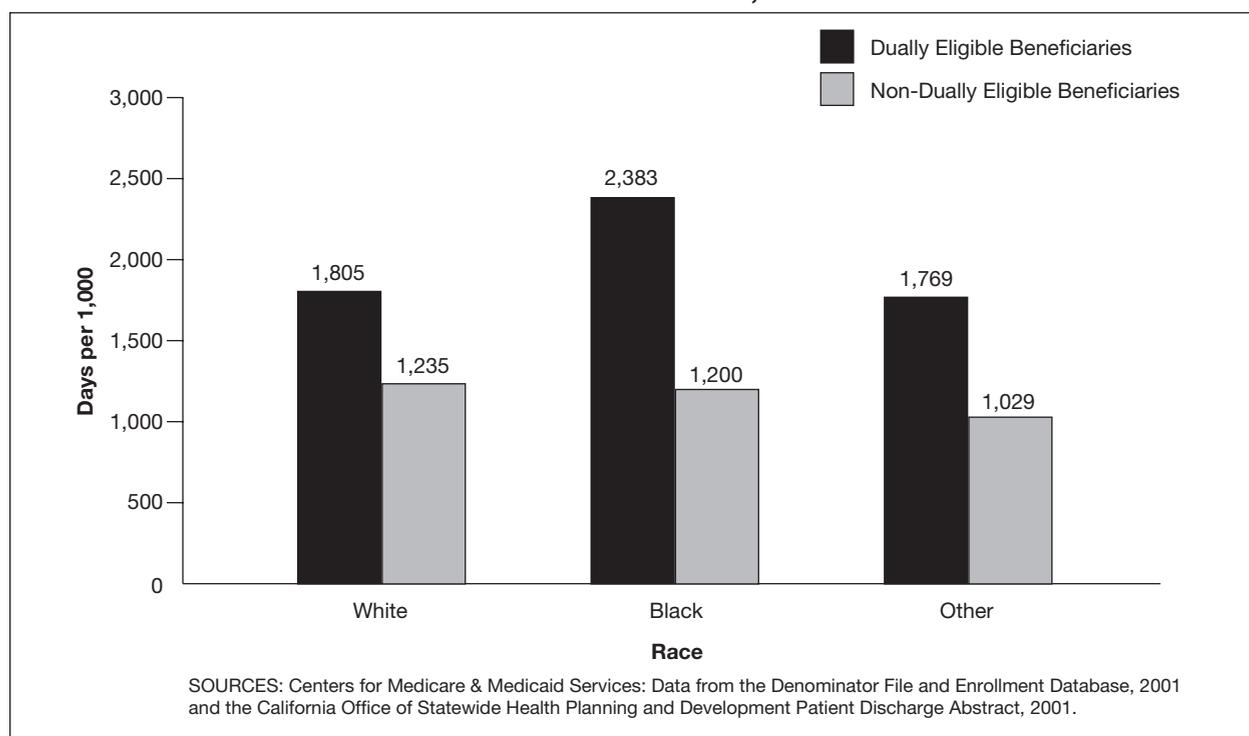
**Figure 7**  
**Mean Inpatient Days, by Age for Disabled Dually and Non-Dually Eligible Medicare Beneficiaries: California, 2001**



**Figure 8**  
**Mean Inpatient Days, by Sex for Disabled Dually and Non-Dually Eligible Medicare Beneficiaries: California, 2001**



**Figure 9**  
**Mean Inpatient Days, by Race for Disabled Dually and Non-Dually Eligible Medicare Beneficiaries: California, 2001**



**Table 1**  
**Discharge Rates and Rate Ratios, by Major Diagnostic Category for Dually and Non-Dually Eligible Disabled Medicare Beneficiaries: California, 2001**

Major Diagnostic Category	Disabled Medicare Beneficiaries				Rate Ratio
	Dually Eligible <sup>1</sup>		Non-Dually Eligible <sup>2</sup>		
	Number of Discharges	Discharges per 1,000	Number of Discharges	Discharges per 1,000	
Human Immunodeficiency Virus Infections	1,749	8.14	361	2.39	3.40
Burns	99	0.46	25	0.17	2.78
Mental Diseases & Disorders	612	2.85	189	1.25	2.27
Diseases & Disorders of Blood & Blood Forming Organs & Immunological Disorders	1,427	6.64	511	3.39	1.96
Alcohol/Drug Use & Alcohol/Drug Induced Organic Mental Disorders	966	4.49	365	2.42	1.86
Diseases & Disorders of the Skin, Subcutaneous Tissue & Breast	3,180	14.79	1,323	8.77	1.69
Injuries, Poisonings & Toxic Effect of Drugs	1,970	9.16	892	5.91	1.55
Diseases & Disorders of the Kidney & Urinary Tract	4,012	18.66	1,850	12.27	1.52
Diseases & Disorders of the Respiratory System	10,199	47.44	4,708	31.22	1.52
Infectious & Parasitic Diseases (Systemic or Unspecified Sites)	2,018	9.39	958	6.35	1.48
Endocrine, Nutritional & Metabolic Diseases & Disorders	3,701	17.22	1,771	11.74	1.47

Refer to footnotes at the end of the table.

**Table 1—Continued**

**Discharge Rates and Rate Ratios, by Major Diagnostic Category for Dually and Non-Dually Eligible Disabled Medicare Beneficiaries: California, 2001**

Major Diagnostic Category	Disabled Medicare Beneficiaries				Rate Ratio
	Dually Eligible <sup>1</sup>		Non-Dually Eligible <sup>2</sup>		
	Number of Discharges	Discharges per 1,000	Number of Discharges	Discharges per 1,000	
Diseases & Disorders of the Hepatobiliary System & Pancreas	3,603	16.76	1,785	11.84	1.42
Ungroupable	1,052	4.89	563	3.73	1.31
Diseases & Disorders of the Nervous System	5,527	25.71	3,000	19.89	1.29
Diseases & Disorders of the Ear, Nose, Mouth & Throat	595	2.77	324	2.15	1.29
Multiple Significant Trauma	65	0.30	36	0.24	1.27
Diseases & Disorders of the Digestive System	6,697	31.15	4,009	26.58	1.17
Diseases & Disorders of the Eye	123	0.57	78	0.52	1.11
Factors Influencing Health Status & Other Contacts with Health Services	407	1.89	266	1.76	1.07
Diseases & Disorders of the Circulatory System	14,088	65.53	9,592	63.60	1.03
Diseases & Disorders of the Female Reproductive System	1,001	4.66	693	4.60	1.01
Myeloproliferative Diseases & Disorders & Poorly Differentiated Neoplasms	607	2.82	474	3.14	0.90
Diseases & Disorders of the Musculoskeletal System & Connective Tissue	6,278	29.20	5,032	33.37	0.88
Diseases & Disorders of the Male Reproductive System	310	1.44	255	1.69	0.85
Total Discharges	70,286	326.94	39,060	259.00	1.26

<sup>1</sup>N=224,977.

<sup>2</sup>N=167,762.

NOTE: The major diagnostic categories are in descending order based on the magnitude of the rate ratios.

SOURCES: Centers for Medicare & Medicaid Services: Data from the Denominator File and Enrollment Database, 2001 and the California Office of Statewide Health Planning and Development Patient Discharge Abstract, 2001.

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**REFERENCES**

Barosso, G.: *Dual Medicare-Medicaid Enrollees and the Medicare Denominator File*. Technical Brief, ResDAC Publication Number TN-010. Research Data Assistance Center, University of Minnesota. Minneapolis, MN. March 2006. Internet address: <http://www.resdac.umn.edu> (Accessed 2007.)

Baugh, D.K.: Estimates of Dual and Full Medicaid Benefit Dual Enrollees, 1999. *Health Care Financing Review* 26(2):133-139, Winter 2004-2005.

Briesacher, B., Stuart, B., Doshi, J., et al.: *Medicare's Disabled Beneficiaries: The Forgotten Population in the Debate over Drug Benefits*. The Commonwealth Fund and The Henry J. Kaiser Family Foundation. Washington, DC and New York. September 2002. Internet address: <http://www.kff.org/medicare/6054-index.cfm> (Accessed 2007.)

California Department of Health Services, Medicare Operations Unit: California's Part B Buy-In Agreement. Internet address: <http://www.dhs.ca.gov/mcs/psd/TPL/HealthInsurSec.htm> (Accessed 2007.)

California Office of Statewide Health Planning and Development (OSHPD), Healthcare Quality & Analysis Division: *Inpatient Hospital Discharges - Frequencies by County (A-K). Patient Discharge Frequencies for California 2002 - 2004*. (2004.) Internet address: <http://www.oshpd.cahwnet.gov/HQAD/PatientLevel/Frequencies/1FrequenciesAtoK.htm> (Accessed 2007.)

Centers for Medicare & Medicaid Services, Office of Research, Development and Information: *Program Information on Medicare, Medicaid, SCHIP, and Other Programs of the Centers for Medicare & Medicaid Services*. June 2002. Internet address: [http://www.cms.hhs.gov/TheChartSeries/downloads/sec3b\\_p.pdf](http://www.cms.hhs.gov/TheChartSeries/downloads/sec3b_p.pdf) (Accessed 2007.)

Centers for Medicare and Medicaid Services: *Overview: Dual Eligibility*. August 30, 2006. Internet address: <http://www.cms.hhs.gov/> (Accessed 2007.)

Cubanski, J., Voris, M., Kitchman, M., et al.: *Medicare Chartbook, Third Edition*. The Henry J. Kaiser Family Foundation. Menlo Park, CA. Summer 2005. Internet address: <http://www.kff.org/medicare/7284.cfm> (Accessed 2007.)

Dale, S.B. and Verdier, J.M.: *Elimination of Medicare's Waiting Period for Seriously Disabled Adults: Impact on Coverage and Costs*. The Commonwealth Fund. New York. July 2003. Internet address: [http://www.cmwf.org/usr\\_doc/660\\_Dale\\_elimination.pdf](http://www.cmwf.org/usr_doc/660_Dale_elimination.pdf) (Accessed 2007.)

Dhanani, N., O'Leary, J., Keeler, E., et al.: The Effect of HMOs on the Inpatient Utilization of Medicare Beneficiaries. *Health Services Research* 39(5):1607-1628, October 2004.

Ettner, S.L.: Inpatient Psychiatric Care of Medicare Beneficiaries with State Buy-In Coverage. *Health Care Financing Review* 20(2):55-69, Winter 1998.

Fellegi, I.P.: Section II: Overview of Applications and Introduction to Theory. Tutorial on the Fellegi-Sunter Model for Record Linkage. In: Kliss, B. and Alvey, W. (eds.): *Record Linkage Techniques*. Proceedings on the Workshop on Exact Matching Methodologies; May 9-10, 1985. Arlington, VA. Department of the Treasury, Internal Revenue Service. Washington, DC:127-138, 1985.

Fellegi, I.P. and Sunter, A.: A Theory for Record Linkage. *Journal of the American Statistical Association* 64(328):1183-1210, December 1969.

Gold, M. and Stevens, B.: *Medicare's Less Visible Population: Disabled Beneficiaries Under Age 65*. Mathematica Policy Research, Inc. Washington, DC. May 2001. Internet address: <http://www.mathematica-mpr.com/publications/PDFs/opinsights2.pdf> (Accessed 2007.)

Hanson, K.W., Neuman, P., Dutwin, D., et al.: Uncovering the Health Challenges Facing People with Disabilities: The Role of Health Insurance. *Health Affairs* W3:552-565, November 2003a. Internet address: <http://content.healthaffairs.org/cgi/reprint/hlthaff.w3.552v1> (Accessed 2007.)

Hanson, K., Neuman, T., and Voris, M.: *Understanding the Health-Care Needs and Experiences of People with Disabilities. Findings From a 2003 Survey*. The

Henry J. Kaiser Family Foundation. Washington, DC. December 2003b. Internet address: <http://www.kff.org/medicare/6106.cfm> (Accessed 2007.)

Holahan, J. and Ghosh, A.: *Dual Eligibles: Medicaid Enrollment and Spending for Medicare Beneficiaries in 2003*. The Henry J. Kaiser Family Foundation. Washington, DC. July 2005. Internet address: <http://www.kff.org/medicaid/7346.cfm> (Accessed 2007.)

Jaro, M.A.: Advances in Record-Linkage Methodology as Applied to Matching the 1985 Census of Tampa, Florida. *Journal of the American Statistical Association* 84(406):414-420, 1989.

Kulkarni, M.P.: *The Guide to Medi-Cal Programs, Third Edition*. California HealthCare Foundation. Oakland, CA. 2006. Internet address: <http://www.chcf.org/topics/medi-cal/index.cfm?itemID=20387> (Accessed 2007.)

Medicare Payment Advisory Commission: *Report to the Congress: New Approaches in Medicare*. Washington, DC. June 2004. Internet address: [http://www.medpac.gov/publications/congressional\\_reports/June04\\_Entire\\_Report.pdf](http://www.medpac.gov/publications/congressional_reports/June04_Entire_Report.pdf) (Accessed 2007.)

Mobley, L., McCormack, L., Booske, B., et al.: Voluntary Disenrollment from Medicare Managed Care: Market Factors and Disabled Beneficiaries. *Health Care Financing Review* 26(3):45-61, Spring 2005.

Murray, L.A. and Eppig, F.J.: Supplemental Insurance for Community Aged and Disabled Beneficiaries: 1999. *Health Care Financing Review* 23(3):161-163, Spring 2002.

Newcombe, H.B.: *Handbook of Record Linkage: Methods for Health and Statistical Studies, Administration, and Business*. Oxford University Press. New York. 1988.

Schneider, A., Elias, R., and Garfield, R.: *The Medicaid Resource Book*. The Henry J. Kaiser Family Foundation. Washington, DC. January 2003. Internet address: <http://www.kff.org/medicaid/2236-index.cfm> (Accessed 2007.)

Shapiro, J.R., Dykstra, D.M., Pisoni, R., et al.: Patient Selection in the ESRD Managed Care Demonstration. *Health Care Financing Review* 24(4): 31-43, Summer 2003.

Sloss, E.M., Dhanani, N., O'Leary, J.F., et al.: Inpatient Utilization by Dual Medicare-Medicaid Eligibles in Medicare Risk HMOs and Fee for Service, California, 1991-1996. *Managed Care Interface* 17(12):30-34, 41, December 2004.

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