

medicaid

and the **uninsured**

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An Overview of Medicaid Enrollees with Diabetes in 2003

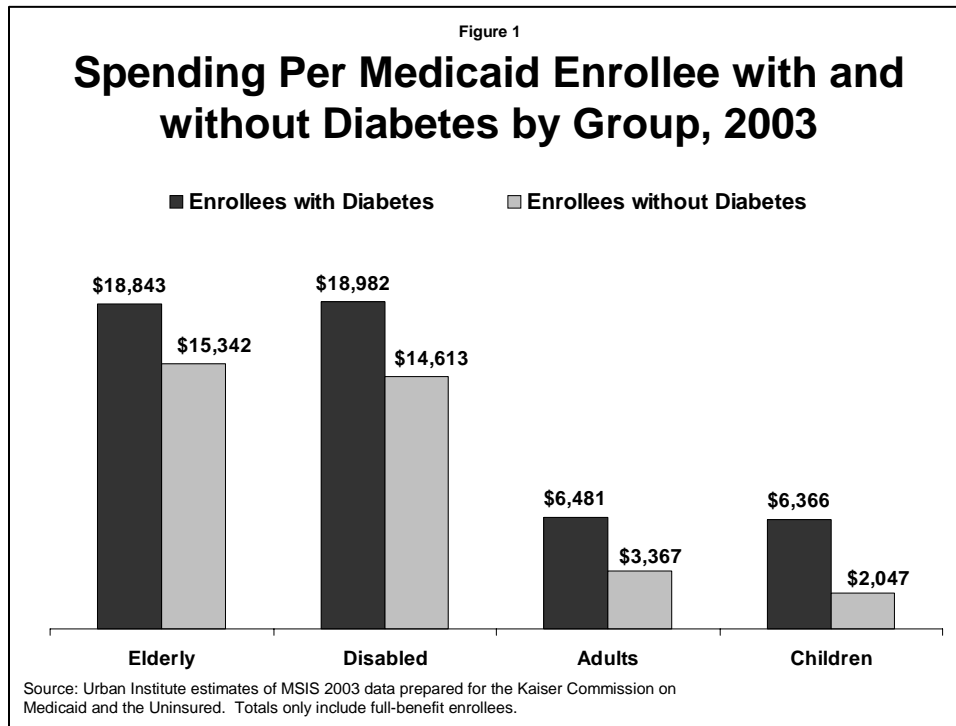
Mindy Cohen
The Urban Institute

Executive Summary

Diabetes was the 6th leading cause of death in the US in 2004 and is among the top 10 most expensive medical conditions in the country. The prevalence of diabetes has grown at double-digit rates over the last 40 years and in some parts of the country is now considered an epidemic.¹ Although more than one in seven diabetics in America rely on the Medicaid program for their health coverage, little is known about who they are or what the program spends on their behalf. This brief provides a first look at this issue using diagnoses codes reported by the states to the federal government through the Medicaid Statistical Information System (MSIS). It highlights spending and enrollment patterns of the nearly 2 million Medicaid enrollees with diabetes in 2003 using administrative data from the MSIS for Federal Fiscal Year 2003.

Key Findings:

- **Roughly 1.9 million Medicaid enrollees had diagnosed diabetes in FY 2003, about 6% of the Medicaid population.** The majority of these enrollees were elderly or disabled. Elderly enrollees had the highest prevalence rate at 22%, while children had the lowest, 0.3%.
- **The 6% of Medicaid enrollees with diabetes accounted for 16% of total Medicaid spending.** On average, enrollees with diabetes spent \$16,967 per capita. Across all eligibility groups, enrollees with diabetes had higher spending than enrollees without diabetes (Figure 1).
- **Enrollees with diabetes used significantly more acute care services than enrollees without diabetes.** This was particularly apparent with inpatient care and prescription drugs, as would be expected for individuals with chronic disease. Long-term care use was not affected by diabetes status, with enrollees with and without diabetes incurring similar long-term care spending.



- Just under one-third of enrollees with diabetes were also diagnosed with mental illness in FY 2003.** Recent studies have demonstrated a strong link between diabetes and mental illness nationally, which is mirrored in the Medicaid population. Per capita spending for this group was two times higher than for diabetic enrollees without mental illness.

Policy Implications

Medicaid enrollees with diabetes are a high-cost population with significant health complications and high levels of health care use. Effective approaches to improve care management for Medicaid enrollees with diabetes hold great potential for improving health while reducing costs; however, more research is required to determine which approaches might be most effective given the characteristics and service-use of the Medicaid population with diabetes. Such research should be informed by claims-level analyses of Medicaid enrollees with diabetes to help better coordinate their care. Unfortunately, these analyses are not supported by current national Medicaid data sources. However, state efforts to address Medicaid enrollees with diabetes and other chronic conditions using state-level claims data and targeted programs are growing more prevalent each year and hold great promise for the development of better approaches to caring for this population.

Introduction

Diabetes was the 6th leading cause of death in the US in 2004. Almost 15 million people had diagnosed diabetes in 2005, up from 8.5 million in 1995, and another 6 million people are thought to live with undiagnosed diabetes today.² Roughly 1.3 million new cases are diagnosed every year in people over 20 and prevalence has increased dramatically over the last 40 years, often growing at double-digit rates.³ This increased prevalence has been the primary reason for increased spending on diabetes over the last few decades, and has made diabetes one of the top 10 most expensive medical conditions in the US.⁴

Medicaid covered about 15% of all individuals with diagnosed diabetes in the country in FY 2003.⁵ These beneficiaries account for a substantial portion of Medicaid program costs even though they are a relatively small percentage of this population. Much of these costs are due to the complications caused by diabetes, which are often the result of inadequate primary care and are therefore preventable.⁶ While the literature has shown mixed results on the effectiveness of disease management programs, it has been proven that diabetes complications can be reduced with comprehensive monitoring and primary care.⁷ Concerned about rising health care costs in the Medicaid program, many states have shifted their focus to disease management programs with a specific emphasis on diabetes – in FY 2006, 12 states implemented Medicaid disease management programs, and 26 more states adopted programs in FY 2007.⁸

Although Medicaid covered a substantial percentage of individuals with diabetes, little is known about this group. This brief highlights the spending and enrollment patterns of Medicaid enrollees with diabetes in FY 2003. Previous research details spending amounts, prevalence rates, and health care utilization rates for all diabetics in the country, but this brief is the first to present spending and enrollment patterns specific to diabetics with Medicaid coverage. We begin this brief with general information on diabetes and provide national estimates of prevalence and costs for diabetes in the US. We then present our findings on diabetes in Medicaid with enrollment and spending by eligibility group and managed care status. We then provide information on total spending and spending for long-term and acute care services, and compare service use of enrollees with diabetes to those without diabetes. We also analyze enrollees with diabetes who also suffer from mental illness, as they account for a sizable percentage of diabetics and have very high costs.

Background on Diabetes

General Overview

Diabetes is a disorder in which the body does not produce enough insulin, a hormone that converts sugar into energy. Untreated diabetes causes a build up of sugar in the bloodstream, and can lead to serious health problems. Individuals can have either Type 1 diabetes or Type 2 diabetes. Type 1, previously called insulin dependent, accounts for about 5-10% of all

diagnosed diabetes cases and usually affects children and young adults; methods of prevention are unknown. Individuals with Type 1 must use insulin to control their diabetes. Type 2 diabetes, previously called adult-onset or non-insulin dependent, accounts for all remaining diagnosed cases of diabetes, and is typically associated with factors such as older age, obesity, family history, physical inactivity, and race/ethnicity.⁹ Type 2 diabetes can be regulated through diet, exercise, and oral medications.

Diabetes causes a wide range of complications, and if poorly controlled will often result in cardiovascular disease, kidney failure, blindness, and a number of other co-morbidities. Diabetes is the number one cause of kidney failure, non-traumatic leg amputations, and new cases of blindness among adults.¹⁰ However, comprehensive primary care, which includes blood sugar monitoring, proper nutrition and physical activity, greatly reduces the risk of these complications. Educating individuals with diabetes on how to control their disease is also a critical part of their care.

National Prevalence

Diabetes affects all ages and ethnicities, although not equally. Elderly people are the most likely group to have diabetes and to experience long-term complications; 10.3 million individuals over 60 years old had diabetes in 2005, which was 20.9% of people in this age group. Children have historically been the least likely group to develop diabetes, although with the incidence of childhood obesity on the rise diabetes is being diagnosed more frequently in children and is the most common chronic disease in kids and adolescents.¹¹ Most of the individuals with diabetes (both diagnosed and undiagnosed) are non-Hispanic whites, however they are the least likely group to develop diabetes - only 8.7% of this group are diabetic, compared to 13.3% of non-Hispanic blacks, 9.5% of Hispanics, and 15.1% of American Indians/Alaska natives. Similar numbers of men and women had diabetes, 10.9 million (10.5%) and 9.7 million (8.8%), respectively.

National Costs

As a result of the high risk of complications, diabetes is a very costly disease to treat. Total costs associated with diabetes was \$132 billion 2002; \$92 billion for direct medical costs, and \$40 billion in indirect costs due to lost work time, disability, and premature mortality.¹² Average per person spending for someone with diabetes was \$13,243 in 2002, compared to \$2,560 for non-diabetics.¹³ People with diabetes are more than twice as likely to develop cardiovascular disease, the most common diabetes complication, which requires expensive hospital stays and often multiple hospital visits. As mentioned previously, comprehensive primary care is critical to preventing costly complications. One study showed that national inpatient hospital costs for diabetes with complications was about \$3.8 billion in 2001, a good portion of which was the result of inadequate primary care. It is estimated that up to \$2.5 billion of this spending could have been saved with appropriate preventive care, including \$386 million in savings to Medicaid alone.¹⁴

Data Sources and Methods

The data used in this analysis come from the FY 2003 Medicaid Statistical Information System (MSIS) Summary File maintained by the Centers for Medicare and Medicaid Services (CMS). The MSIS contains demographic, eligibility, and expenditure information for all Medicaid enrollees. We designate all enrollees using the Basis of Eligibility in MSIS as elderly (age 65 and older), disabled under age 65, or other adults or other children not classified as disabled.

Spending is aggregated into over 30 types of services, including inpatient care, drugs, personal care, and others. Due to the aggregated nature of spending reported in the MSIS, we present total spending by service for individuals included in our study, but are unable to separate out spending for health care services specifically related to diabetes. Expenditures reported in MSIS do not include disproportionate share payments to providers, payments to Medicare, or administrative payments.¹⁵

Individuals in MSIS are classified by the level of benefits they receive - enrollees are either entitled to the full scope of Medicaid benefits (termed full-benefit) or only a subset of services, such as pregnancy-related or substance abuse-services (termed restricted benefit). As these restricted benefit enrollees often display notably different patterns of spending from full-benefit enrollees, we excluded them from our analysis and only included full-benefit enrollees in all data calculations. Individuals had to be classified as full-benefit enrollees for every month of FY 2003 or we considered them restricted-benefit enrollees. This excludes roughly 22.5 million people from our analysis, or 41% of total Medicaid enrollment in FY 2003. MSIS also contains information on monthly eligibility status. In order to provide more accurate calculations of average spending per enrollee amounts for a full year, we annualized spending amounts for any individuals who were only enrolled for part of the year based on the number of months they were enrolled. In this analysis, we include all enrollees in both fee-for-service Medicaid and Medicaid managed care plans, unless otherwise stated in the tables.

This analysis focuses on individuals who are “flagged” as having diabetes during FY 2003 in Medicaid.¹⁶ This flag, created by CMS, is determined by the presence of certain ICD-9 codes related to diabetes on the individual’s health care claims during the year.¹⁷ Underreporting of diagnosis codes is a limitation of our study, which occurs primarily for two major reasons. First, MSIS only captures individuals who received treatment for their diabetes, and will therefore exclude individuals with undiagnosed diabetes or diagnosed diabetes but no treatment in FY 2003. Second, although an individual may have received treatment for their diabetes during the timeline of our study, that information may not be captured due to claim reporting errors or lack of reporting requirements. Some states had high missing rates of claims or diagnosis codes for certain services, predominantly long term care claims. Other states have a maximum number of diagnosis codes allowed to be reported per fee-for-service claim. Claims submitted by managed care plans typically exclude diagnosis information, which occurs in most states.

Findings

Prevalence

Roughly 1.9 million enrollees had diagnosed diabetes in 2003, or 6% of the Medicaid population (Table 1). This is higher than the national prevalence of diagnosed diabetics at 14.6 million or 4.9% of the entire US population.¹⁸ The vast majority of Medicaid enrollees with diabetes were elderly or disabled, with non-disabled adults and children accounting for about 16%. The highest prevalence rate was among the elderly, 22%, and non-disabled children the lowest, 0.3%.

Table 1
Enrollment and Spending for Diabetics in Medicaid by Eligibility Group, 2003

Eligibility Group	Enrollment		Spending		
	Number of Enrollees	Percent of Eligibility Group with Diabetes	Total Spending	Share of Spending within Eligibility Group	Spending per Enrollee
Elderly	769,073	22%	\$14,491,773,363	25%	\$18,843
Disabled	798,345	13%	\$15,154,266,909	17%	\$18,982
Adults	238,445	5%	\$1,545,371,938	9%	\$6,481
Children	52,029	0.3%	\$331,225,848	1%	\$6,366
Total	1,857,892	6%	\$31,522,638,058	16%	\$16,967

Source: Urban Institute estimates based on MSIS 2003 data. Data for Maryland are excluded.

These trends are similar to national prevalence rates discussed above and are expected, as diabetes worsens with age and primarily affects older individuals. Table 2 shows the subset of this population enrolled in Medicaid managed care. Total prevalence was slightly lower in this group (4%) than all enrollees with diabetes (6%), although this is expected as managed care claims often exclude diagnosis codes and will therefore underestimate the total number of managed care enrollees who have diabetes. Of the roughly 835,000 managed care enrollees with diabetes, more than 40% were disabled and just under one-third were elderly. Elderly enrollees had the highest in-group prevalence. In addition, dual eligibles had much higher prevalence rates than non-duals, 19% to 3%, which is expected as duals are typically in much

Table 2
Distribution of Spending Comparisons Among Diabetics in Managed Care Plans

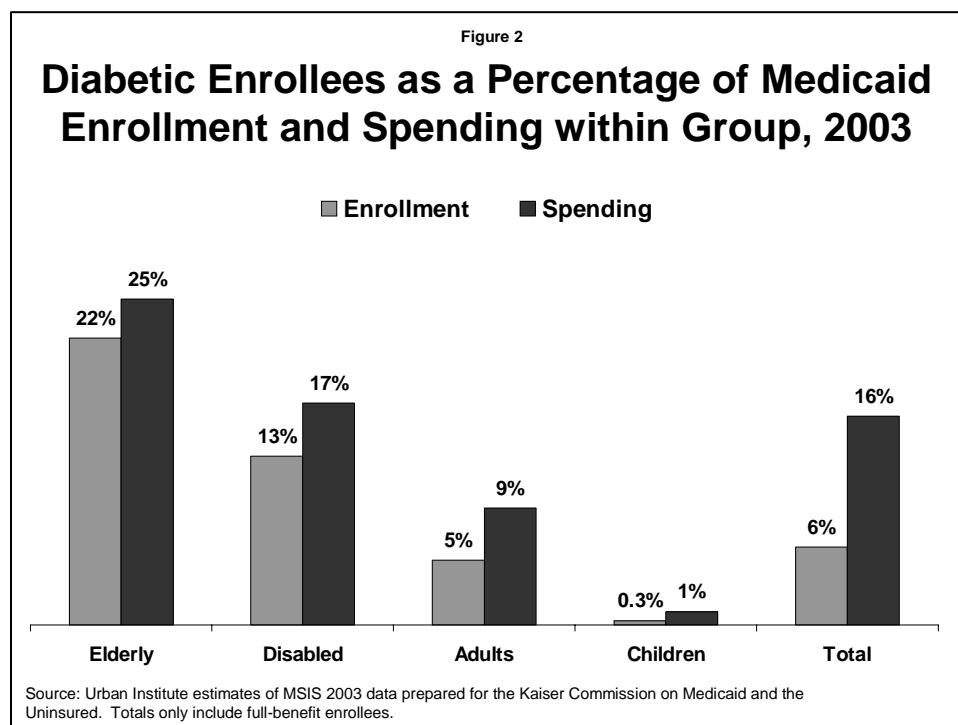
Eligibility Group	Enrollees with Diabetes in Managed Care		
	Enrollment	Percent of Eligibility Group with Diabetes	Total Spending Per Enrollee
Elderly	250,267	18%	\$15,090
Disabled	365,891	11%	\$16,393
Non-Disabled Adults	181,835	5%	\$5,636
Non-Disabled Children	37,413	0%	\$5,242
Total	835,406	4%	\$13,162

Source: Urban Institute estimates based on MSIS 2003 data. Data for Maryland are excluded.

poorer health than non-duals (data not shown).¹⁹

Total Spending and Spending Per Enrollee

The 6% of Medicaid enrollees with diabetes spent about \$31.5 billion in FFY 2003 - 16% of total spending on Medicaid (Table 1 and Figure 2). On average, all diabetics in Medicaid spent \$16,967 per capita. Spending per enrollee amounts were very similar for elderly and disabled Medicaid diabetics, \$18,843 and \$18,982, while non-disabled adults and children spent about one-third of that. Elderly and disabled enrollees in managed care had notably lower average spending per enrollee than all elderly and disabled enrollees with diabetes - \$15,090 and \$16,393 for those with managed care (Table 2).



Service Use

Service use, as measured by spending per enrollee amounts, differed dramatically between diabetics and non-diabetics. Table 3, which evaluates spending per enrollee by service for the fee-for-service population only, shows that enrollees with diabetes spent much more on acute services than enrollees without diabetes, across all eligibility groups.²⁰ Elderly diabetics spent almost three times more on inpatient services than elderly non-diabetics, \$1,620 compared to \$566, and a greater percentage of all spending went to acute care services in general. These differences are quite striking considering most elderly Medicaid enrollees are dual eligibles, and will therefore have much of their acute care services covered by Medicare as well. Elderly enrollees with diabetes also spent notably more on prescription drugs, \$3,136 to \$1,969.

Table 3
Distribution of Spending Comparisons Among Diabetics and Non-Diabetics in Medicaid by Eligibility Group - Fee-For-Service ONLY

	Enrollees with Diabetes		Enrollees without Diabetes	
	Spending Per Enrollee	Share of Total Spending Per Enrollee	Spending Per Enrollee	Share of Total Spending Per Enrollee
Elderly				
<i>Enrollment</i>		518,806		1,656,206
Long Term Care*	\$13,628	66%	\$14,296	78%
Inpatient	\$1,620	8%	\$566	3%
Outpatient/Physician/Clinic	\$927	4%	\$495	3%
Drugs	\$3,136	15%	\$1,969	11%
Other Acute**	\$1,376	7%	\$928	5%
Total	\$20,687	100%	\$18,254	100%
Disabled				
<i>Enrollment</i>		432,454		2,317,571
Long Term Care*	\$6,897	32%	\$9,853	55%
Inpatient	\$5,023	24%	\$2,111	12%
Outpatient/Physician/Clinic	\$3,141	15%	\$1,919	11%
Drugs	\$4,181	20%	\$2,331	13%
Other Acute**	\$1,986	9%	\$1,827	10%
Total	\$21,227	100%	\$18,040	100%
Non-Disabled Adults				
<i>Enrollment</i>		56,610		974,291
Long Term Care*	\$301	3%	\$79	2%
Inpatient	\$3,994	43%	\$1,535	39%
Outpatient/Physician/Clinic	\$2,604	28%	\$1,432	36%
Drugs	\$1,641	18%	\$540	14%
Other Acute**	\$679	7%	\$340	9%
Total	\$9,218	100%	\$3,926	100%
Non-Disabled Children				
<i>Enrollment</i>		14,616		3,708,953
Long Term Care*	\$1,883	20%	\$225	10%
Inpatient	\$2,602	28%	\$496	23%
Outpatient/Physician/Clinic	\$1,773	19%	\$620	28%
Drugs	\$1,264	14%	\$232	11%
Other Acute**	\$1,742	19%	\$618	28%
Total	\$9,264	100%	\$2,191	100%

Source: Urban Institute estimates based on MSIS 2003 data. Data for Maryland are excluded.

*Long Term Care includes nursing facilities, ICF/MR, inpatient mental health facilities, home health, personal care, and home and community-based services.

**Other Acute includes dental, hospice, targeted case management, labx, midwife, nurse practitioner, private duty nursing, other practitioners, sterilization, abortion, rehab, therapy, transportation, and other services.

Disabled enrollees with diabetes also spent significantly more on inpatient services (\$5,023 to \$2,111) and drugs (\$4,181 to \$2,331) than disabled enrollees without diabetes. Disabled enrollees with diabetes were much less reliant on long-term care services than disabled non-diabetics, but still had higher average total spending, despite the high expense typically associated with long-term care services.

Non-disabled adults and children with diabetes followed similar trends to elderly and disabled diabetics. Non-disabled adults had very high average spending per enrollee amounts for inpatient and outpatient/physician/clinic care, somewhat close to levels for disabled enrollees. Forty-three percent of spending for non-disabled adults with diabetes was for inpatient care, with average spending of \$3,994. Non-disabled children with diabetes were quite expensive relative to children without diabetes, with average spending more than 4 times that of non-diabetic children (\$9,264 and \$2,191 respectively). Children with diabetes spent over 5 times more on inpatient care and prescription drugs than children without diabetes.

Diabetics with Mental Illness

Recent studies have shown there is a strong link between diabetes and mental health - individuals with Type 2 diabetes are twice as likely to develop Alzheimer’s and depression, and the rate of diabetes in individuals with mental illness is twice as high as the general population.²¹ While the links between these two diseases are still being researched, this is a critical population to study as they suffer from two vastly different conditions that both require constant monitoring and comprehensive health care.

Among Medicaid enrollees with diabetes, just under one-third were also diagnosed with mental illness (Table 4). Not surprisingly, these individuals were significantly more expensive than enrollees with diabetes but without mental illness, spending on average \$26,710 to \$12,708 respectively. While individuals with both diagnoses only accounted for a third of total enrollment of diabetics, their total spending of \$15 billion accounted for almost half of spending on all diabetics in Medicaid. Elderly enrollees with diabetes and mental illness were the most expensive group of those with both diagnoses, with average spending of \$33,275. Disabled individuals with diabetes and mental health diagnoses had lower spending per enrollee amounts, \$25,983, but were still costly. Non-disabled children had noticeably high spending, with average spending at \$13,789. These children, while technically classified as non-disabled for the purposes of Medicaid eligibility, most likely suffer from multiple comorbidities and require significant acute care.

Table 4
Spending and Enrollment for Diabetic Enrollees with a Mental Illness Diagnosis by Eligibility Group, 2003

Eligibility Group	Enrollment	Percent of Diabetic Enrollees with Diabetes and Mental Illness	Total Spending	Spending Per Enrollee	Spending Per Enrollee for Diabetics WITHOUT Mental Illness
Elderly	186,915	24%	\$6,219,505,322	\$33,275	\$14,210
Disabled	313,454	39%	\$8,144,600,603	\$25,983	\$14,456
Adults	53,025	22%	\$568,140,509	\$10,715	\$5,270
Children	11,672	22%	\$160,940,758	\$13,789	\$4,219
Total	565,066	30%	\$15,093,187,192	\$26,710	\$12,708

Source: Urban Institute estimates based on MSIS 2003 data. Data for Maryland are excluded.

Conclusions and Discussion

Medicaid enrollees with diabetes accounted for 6% of enrollment and 16% of spending nationally. Among all groups, diabetics in Medicaid are significantly more expensive than their non-diabetic counterparts. Medicaid diabetics in this analysis rely heavily on acute care, especially inpatient care, which is expected with individuals with chronic disease.

The vast majority of diabetics in Medicaid are elderly or disabled, already an expensive population that typically has multiple comorbidities, and they spend on average about 3 times more than adults or children with diabetes. That diabetics are much more likely to be high-cost enrollees than non-diabetics has led state and federal policy makers to refocus on disease management programs. While the literature has shown mixed results of the cost-effectiveness of disease management programs, both the federal government and individual states increasingly view the monitoring and treatment of chronic disease as an important issue from both a quality and cost perspective.

While this brief provides valuable information on the Medicaid population with diabetes, it raises many questions. It is unclear how many enrollees with diabetes are receiving an adequate level of primary care and for those that do receive it, how their utilization levels and health outcomes compare to other diabetics in Medicaid. As states shift their focus to disease management and emphasize patient involvement in monitoring their conditions, it is important to better understand this population. Further research using claims data to analyze health care utilization for diabetes-related complications over a multi-year period could provide the additional detail necessary to shed light on the most appropriate way to care for this population.

Notes

- ¹ Kleinfeld N.R. "Diabetes and Its Awful Toll Quietly Emerge as a Crisis." *New York Times*, January 9, 2006.
- ² CDC National Diabetes Fact Sheet, United States 2005.
- ³ Ford Earl, Ali Mokdad, Wayne Giles, Deborah Galuska, Mary Serdula. "Geographic Variations in the Prevalence of Obesity, Diabetes, and Obesity-Related Behaviors". *Obesity Research* (13) 1. January 2005.
- ⁴ Thorpe Kenneth, Curtis Florence, Peter Joski. "Which Medical Conditions Account for The Rise in Health Care Spending?" *Health Affairs*, Web Exclusive, August 25, 2004.
- ⁵ Urban Institute estimates of MEPS 2003 data.
- ⁶ Medicaid covers diabetes testing supplies and medications for diabetics, however they are optional services and this coverage can vary from state to state.
- ⁷ Congressional Budget Office, "An Analysis of the Literature on Disease Management Programs," October 2004.
- ⁸ Smith Vernon, Kathleen Gifford, Eileen Ellis, Amy Wiles, Robin Rudowitz, Molly O'Malley, Caryn Marks. "Low Medicaid Spending Growth Amid Rebounding State Revenues: Results from a 50-State Medicaid Budget Survey State Fiscal Years 2006 and 2007". *Kaiser Commission on Medicaid and the Uninsured*, October 2006.
- ⁹ CDC National Diabetes Fact Sheet, United States 2005.
- ¹⁰ CDC National Diabetes Fact Sheet, United States 2005.
- ¹¹ CDC Fact Sheet: SEARCH for Diabetes in Youth.
- ¹² Hogan Paul, Tim Dall, Plamen Nikolov. "Economic Costs of Diabetes in the US in 2002." Report from the American Diabetes Association. *Diabetes Care* (26) 3, March 2003.
- ¹³ American Diabetes Association. "Direct and Indirect Costs of Diabetes in the United States."
- ¹⁴ HCUP highlights - Economic and Health Costs of Diabetes, January 2005, Pub # 05-0034.
- ¹⁵ We adjust aggregate spending amounts by state listed in the MSIS to mirror those listed on the FFY 2003 CMS Form 64, an aggregate audited report used to determine federal matching payments. The totals on the CMS 64 are considered a more accurate representation of actual federal and state spending.
- ¹⁶ We excluded Maryland due to general data reporting errors that caused an overstatement of total expenditures in FY 2003 by roughly \$500 million and misallocation of dollars between service categories.
- ¹⁷ The ICD-9 codes used to determine the presence of diabetes include - 250.xx, 357.2, 362.0x, 366.41, 648.0x.
- ¹⁸ CDC National Diabetes Fact Sheet, United States 2005.
- ¹⁹ Dual eligibles are Medicaid enrollees who are jointly covered by Medicare.
- ²⁰ We excluded enrollees with managed care coverage (hmo, php or pccm) in these tables because spending on specific services such as inpatient or home health care is often reported under the

managed care categories and not the actual service, causing an underestimation of dollars actually spent on a specific service.

- ²¹ Kleinfeld N.R. "In Diabetes, One More Burden For The Mentally Ill". *New York Times*. June 12, 2006; Grady Denise. "Link Between Diabetes and Alzheimer's Deepens." *New York Times*. July 17, 2006.

1330 G STREET NW, WASHINGTON, DC 20005
PHONE: (202) 347-5270, FAX: (202) 347-5274
WEBSITE: WWW.KFF.ORG/KCMU

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