

NIH Public Access

Author Manuscript

Am J Manag Care. Author manuscript; available in PMC 2006 July 24.

Published in final edited form as: *Am J Manag Care*. 2006 July ; 12(7): 397–404.

Insurance Coverage and Subsequent Utilization of Complementary and Alternative Medical (CAM) Providers

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Abstract

Objective—Since 1996, Washington State law has required private health insurance to cover licensed CAM providers. This study evaluated how insured people used CAM providers and what role this played in health care utilization and expenditures.

Study Design—Cross sectional analysis of calendar year 2002 insurance enrollees from Western Washington State.

Methods—Analysis of insurance demographic data, claims files, benefit information, diagnoses, CAM and conventional provider utilization, and health care expenditures for three large health insurance companies.

Results—Among over 600,000 enrollees, 13.7% made CAM claims. This included 1.6% of enrollees with claims for naturopathy, 1.3% acupuncture, 2.4% massage and 10.9% chiropractic. Patients enrolled in Preferred Provider Organizations and Point of Service products were significantly more likely to use CAM than those with Health Maintenance Organization coverage. CAM use was greater in women and people between 31 and 50 years of age. Chiropractic was more frequent in less populous counties. CAM provider visits usually focused on musculoskeletal complaints, except for naturopathic physicians who treated a broader array of problems. Median per visit expenditures for CAM care were \$39.00 compared to \$74.40 for conventional outpatient care. Total expenditures per enrollee were \$2,589 of which \$75 (2.9%) was spent on CAM.

Conclusions—The number of people using CAM insurance benefits was substantial; the effect on insurance expenditures was modest. Because the long term trajectory of CAM cost under third party payment is unknown, utilization of these services should be followed.

Keywords

Complementary Therapies; Health Care Costs; Insurance Claim Review; Utilization Review

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This publication was made possible by Grant Number NIH R01 AT000891-05 from the National Center for Complementary and Alternative Medicine (NCCAM). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the National Center for Complementary and Alternative Medicine, National Institutes of Health.

INTRODUCTION

During the last decade, the health professionals collectively known as complementary and alternative medicine (CAM) providers have been recognized as mainstream sources of health care. Regulation by government agencies and validation of some CAM therapies by scientific studies have increased the credibility of CAM professionals. All 50 states now license chiropractors, and about 85% of states license some of the other CAM providers such as naturopathic physicians, acupuncturists, or massage therapists.¹ The number of CAM providers is also projected to double during the next decade² following a growth in consumer demand for these services.³ Clinical trials have documented the efficacy of CAM provider treatments for several medical problems such as backpain,⁴ osteoarthritis,⁵ and nausea and vomiting from chemotherapy.⁶ Other studies are in progress.

As the number of CAM providers and the visibility of CAM services increase, the pressure on third party payers to cover these services grows. Wolsko et al. report that many insurance products already cover chiropractic in some form.⁷ A Kaiser Family Foundation employer survey in 2004 found that 87% of covered employees had chiropractic coverage, and 47% had acupuncture coverage.⁸ The Landmark Report II on HMOs and Alternative Care reported that 67% of HMOs offer some type of alternative care.⁹ To date, no studies have reported figures for population based utilization and the financial consequences to third party payers of broadly covering CAM providers in their insurance products.

The state of Washington provides an important laboratory to assess the magnitude of economic risk when a third party payer covers CAM providers. In 1996, Washington passed a law mandating that all commercial health insurance companies cover the services provided by every category of licensed provider (ECOP).¹⁰ This law was implemented in a context of a legislative environment already friendly to CAM providers because mandatory inclusion of a chiropractic benefit had been required since 1983.¹¹

This study calculates CAM utilization and expenditures for insurance companies that underwrite Western Washington health insurance. Calendar year 2002 insurance benefit structures, CAM provider use, and spending for services are described for over 600,000 private insurance enrollees.

METHODS

Population and Sample

This study was approved by the University of Washington Human Subjects Review Board in 2001. Three large insurance companies participated in this study. Company selection was based on the willingness to participate, data retrieval capacity, and market penetration in Western Washington. Data for calendar year 2002 were included for all individuals 18–64 years of age, continuously enrolled for twelve months in a single private health insurance plan covered by Washington's ECOP requirement. Self-insured employer plans were therefore excluded. All insurance products that we studied provided comprehensive medical coverage. Insurance products were categorized as Health Maintenance Organization (HMO), Point of Service (POS), and Preferred Provider Organization (PPO). Unknown product type and Traditional/ Indemnity coverage accounted for less than 4.25% of enrollees and were excluded because of missing data.

Databases and Measures

Analysis files were created for each company. Company A provided an assembled analysis file that lacked expenditure information, whereas Companies B and C provided separate files with data on enrollment, medical claims, utilization, and expenditures. CAM utilization data

for Company A were available only for their HMO product line, excluding approximately onethird of their customers in POS products.

Enrollment data included unique encrypted enrollee identification codes, birth year, sex, residence zip code, product type, employer contract number, ERISA status, and months of active enrollment. Medical claims contained the unique encrypted enrollee identification codes, claim number, service date, service location, International Classification of Disease (ICD9) codes, ¹² the Current Procedural Terminology (CPT) codes, ¹³ and Healthcare Common Procedural Coding System (HCPCS) codes. ¹⁴ We also received data on line item charges and provider type (including specific codes for acupuncture, naturopathic medicine, massage, and chiropractic practitioners). In any given year an enrollee's health plan was defined as the product type in December of the analysis year. In tables and figures the designation of "enrollee" reflects the total population of covered individuals in the study sample and "claimant" refers only to the people who used any allowed service. From our enrollment data, we generated variables for age and county of residence. In the medical claims data, a visit was defined as one encounter to a specific provider per day. Duplicate visits were excluded from the analysis database.

Provider types were divided into three categories: (1) CAM providers were defined as chiropractors, massage therapists, acupuncturists, and naturopathic physicians; (2) conventional providers were defined as physicians (including osteopaths and specialists), physical therapists, advanced registered nurse practitioners, and physician assistants; and (3) providers who did not fit into either of these categories, including occupational therapists and psychologists, were put into a third category called "other" as previously described. ¹⁵ In some analyses, naturopathic physicians, acupuncturists, and licensed massage therapists were combined and referred to as "NAM" providers because unlike chiropractors, they were not reimbursed by insurance prior to 1997, but were covered in some form thereafter. Location of service was categorized as inpatient, outpatient clinic/provider office, and outpatient other, e.g. emergency room, drug treatment facility, and kidney dialysis center. Pharmacy files were supplied by Companies B and C. The pharmacy files included data on the number of prescriptions filled and aggregated annual expenditures for each enrollee's prescription drugs.

For Companies B and C, several expenditure variables were available for each visit. The amount allowed by the insurance company was chosen as the closest proxy for expense. Inpatient hospital expenditures, all outpatient services, and pharmacy expenditures were included in the calculation of per capita outlays.

The Johns Hopkins Adjusted Clinical Grouping (ACG) software, version 6, ¹⁶ was used for risk adjustment, to counter selection bias in the individuals who chose to use CAM providers. Using this software, we constructed two indices of the types of diseases or disorders present and the expected resource utilization for each patient. The indices are: (1) Expanded Diagnosis Clusters (EDCs), which categorize ICD-9 codes into 26 major disease categories for each individual; and (2) Resource Utilization Bands (RUBs) which measure an individual's expected resource use and are created by grouping Adjusted Clinical Group codes for individuals with similar levels of expected resource use. Lower RUBs include individuals with less expected resource use and higher RUBs include those with greater expected resource use.

Predictors of CAM use were modeled using logistic regression analysis. Predictors included in the model were age group, gender, insurance product type, county population, disease types present (using indicators for the 26 EDC categories) and indicators for expected resource use (using indicators for the five RUB categories). These predictors were then entered in a linear regression model. This model included more than 500,000 observations, thus using linear regression provides valid estimates even though the outcome variable is dichotomous.¹⁷

National Health Interview Survey (NHIS)¹⁸ data from the 2002 supplemental survey on Complementary and Alternative Care use was used to provide a US comparison to our Western Washington State experience. To approximate the selection criteria used for our local data, adults (18–64) with private insurance were selected from the NHIS sample and then three of the NHIS databases (samadult, personsx, and althealt) were linked together for our analysis. As with the analysis of Washington State data, US CAM utilization was defined as the use of a chiropractor, massage therapist, acupuncturist, or naturopathic physician in the last 12 months.

RESULTS

CAM Benefit Structures

Since 1983 all private health insurance companies were required to have a chiropractic benefit. The ECOP law was implemented in 1996 and required that private health insurance companies include access to all categories of licensed providers in private insurance products. In 2000, the ability to self-refer for chiropractic care was also mandated. The history of these benefits has been extensively described.¹⁹ Company A created a list of medical conditions for which the scientific data were strongest for CAM use such as chronic pain syndromes for acupuncture, back pain for massage, and selected medical conditions for naturopathy. Enrollees were required to obtain a referral from a primary care physician (except chiropractic, for which enrollees could self-refer for the first 10 visits) and some visit limits were established by type of service. Visit limits could be increased based on the primary care provider's recommendation. Massage therapy for fibromyalgia was originally included but then excluded in 1998. By 2002, Company B and C had extended the CAM benefit to all product lines using similar cost sharing to conventional medical services. Massage was treated like a rehabilitation benefit with visit limits and primary care provider referral requirements.

Population and Sample

The three companies that participated covered approximately 75% of Western Washington's private insurance market. Over 600,000 enrollees met the study inclusion criteria. Table 1 summarizes the characteristics of the study population and CAM claim prevalence. Subjects were 53.3% female, 57.0% were over 40 years, and 73.1% lived in counties with a population greater than 400,000. HMO coverage was the most common (41.1%), followed by PPO coverage (38.5%), and POS coverage (20.4%). The study population was composed of 24.9% low utilizers (RUBs 0 or 1) and 12% high utilizers (RUBs 4 or 5). The percent of enrollees with claims was 83.4%. Overall, 13.7% of enrollees made a CAM claim: 1.3% enrollees had claims for acupuncture, 1.6% naturopathic medicine, 2.4% massage, and 10.9% chiropractic. US survey data from privately insured people in 2002 showed that 1.2% used acupuncture, 0.3% used a naturopathic physician, 6.5% used massage, and 8.4% used chiropractic. As in Washington State, US CAM use was greater for enrollees in PPO (16.3%) and POS (16.8%) products than in HMOs (10.9%).

Prevalence and Predictors of CAM Provider Use

Table 2 shows the predictors of CAM use. Significant predictors included female gender and age groups between 31–50 years. Enrollees in insurance products that offered greater consumer choice (e.g. PPO and POS products vs. HMOs) showed greater utilization of CAM. The single greatest predictor of CAM use was expected resource consumption based on Resource Utilization Band (RUB) index People in RUBs 4 or 5 (expected high utilizers of medical care) were over 11 times more likely to use CAM than people in RUB 1. CAM use was lowest in urban areas due to lower rates of chiropractic use in urban counties than in rural counties.

CAM Utilization and Total Medical Expenditures

Table 3 shows the visit level utilization of CAM and conventional services for companies A,B, and C. Expenditure data were available for companies B and C only. Chiropractic, naturopathic medicine, acupuncture, and massage accounted for 17.6% of outpatient provider visits and 2.9% of total medical expenditures. CAM expenditures were dwarfed by the high cost of conventional care. Median per visit expenditures for CAM providers were \$39.00 compared to \$74.40 for conventional outpatient care. Inpatient hospital expenditures were 21.6% and prescription drugs were 23.1% of total medical expenditures. The 12% of the insured population in RUBS 4 and 5 were responsible for 33.5% of CAM, 41.0% of outpatient conventional, and 49.7% of total expenditures.

Medical Problems Treated by CAM Providers

Table 4 shows provider diagnoses for Companies B and C. Musculoskeletal pain was the most common diagnosis from a CAM visit, accounting for 99.3% of visits to chiropractors, 92.7% of visits to massage therapists, 72.7% of visits to acupuncturists, and 30.7% of visits to naturopathic physicians. Musculoskeletal pain was also the top diagnosis for conventional providers, representing 21.0% of visits. Female reproductive diagnoses were the next most frequent reasons for naturopathic physician visits accounting for 18.2% of all visits, almost half of which (3,512) were for menopause treatment. Neurologic problems such as headache accounted for 17.9% of visits to acupuncturists, 13.2% of visits to naturopathic physicians, 8.7% of visits to massage practitioners, 6.2% of chiropractic visits and only 5.2% of visits to conventional providers.

CONCLUSIONS

Our study addresses important questions about CAM use by people with private insurance who have a CAM benefit. Our cohort had fewer people with claims for massage, a similar proportion with claims for acupuncture, and a greater proportion with claims for naturopathic physicians and chiropractors than was seen in privately insured adults who took part in the 2002 National Health Interview Survey (NHIS). We believe the requirement for a provider referral reduced the claims for massage in our population. A survey of our cohort like NHIS would undoubtedly reveal additional use outside of insurance billing. Our study also shows that relatively small proportion of the population use acupuncture, even when it is covered by insurance and that among the privately insured chiropractic is the most commonly used form of CAM in the US and Washington State, 8.3% and 10.9% use respectively. The 5 times greater prevalence in the use of naturopathic medicine in our insured cohort compared to national surveys is likely a regional phenomenon. Western Washington's 422 actively licensed NDs (Washington State Department of Health, Information Services, personal communication; February 2003) represent approximately 31% of all NDs licensed nationally.¹ Even with the above differences noted, the prevalence of CAM use in our claims data is very similar to the NHIS data (13.7% vs. 13.4%). Although we do not know why this is true, it suggests that insurance coverage of licensed CAM providers does not lead to runaway utilization.

As shown in previous population-based surveys, we found that CAM use is greater in certain groups than others. The proportion of insured that fall into these different categories will be one factor determining the prevalence of CAM use. For example, patients who have high expected resource utilization based on risk-adjustment schemes use more CAM than people who use less health care. Other studies using provider visits as a measure of utilization have found similar results.²⁰ Although women were only slightly more likely to use chiropractic than men, they were over twice as likely to use naturopathic medicine, massage, and acupuncture. The treatment of specific medical conditions, such as menopause, account for some of these gender-specific differences. Chiropractic use was substantially more common

We did not expect to find that CAM care would account for such a small proportion of insurance expenditures. Eisenberg's 1997 survey data estimated expenditure for CAM professional expenditures between 21.2–32.7 billion dollars or about 1.9%–3.0% of total 1997 health care expenditures.²² Our estimate that CAM providers accounted for 2.9% of 2002 private insurance expenditures is similar to these earlier national survey data. Payers have resisted covering CAM providers in part because of a fear that coverage would result in large, steadily increasing, and unpredictable expenditures for CAM services, not unlike the history of prescription drug coverage. Our study done six years after the mandated inclusion of CAM benefits in Washington State suggests that this is not going to be the case. We hypothesize several reasons. First, because the typical CAM patient's emphasis is on the treatment of musculoskeletal pain, the scopes of practice for many CAM providers overlap. This suggests that other CAM services such as massage and acupuncture may compete with the previously covered CAM service of chiropractic care. Second, even though naturopathic physicians, and to a lesser extent acupuncturists, have broader scopes of practice, these services are used by a very small fraction of the population. Third, CAM providers in our study practice a less expensive form of medicine. They provided virtually no inpatient services and as we have previously shown they rarely use expensive diagnostic tools such as imaging technology.²³

Our study has several imitations. First, we measured utilization and expenditure not efficacy and value. Even though we found that CAM's proportion of the insurance dollar is small, 2.9% of over a billion dollars is still a great deal of money. Randomized controlled trials performed for specific CAM interventions clearly show that CAM (like conventional care) is not effective for all of the conditions that it is used to treat, e.g. acupuncture for fibromyalgia.²⁴ Even so, many patients commonly integrate CAM and conventional care^{25,26} and the extent to which this should be encouraged is unclear. Second, the value to the health care consumer of integrating CAM services into health insurance benefits is still debated in Washington State. The movement toward forms of consumer directed health care will test the consumer's commitment to CAM services. In theory, the economical nature CAM interventions may be very attractive to patients with high deductible insurance policies and private medical savings accounts. Studies on CAM cost sharing, cost-effectiveness, and medical quality are clearly warranted. Third, although the samples for this study are quite large the population and benefits are always select. The exclusion of Medicaid and Medicare recipients, the uninsured, and selfinsured companies mean that our data may be incomparable to some large population-based national surveys. Although we believe our four provider categories capture almost all professional CAM services (96.5% based on NHIS population-based use estimates) at least 11 additional provider groups have been included in national surveys.²⁷

Our study is of national significance as insurance companies in the United States respond to consumer demand for an integrated CAM benefit.²⁸ The Washington State law mandating CAM provider coverage in private commercial insurance products creates a window through which consumer behavior under various CAM and conventional benefit structures can be monitored and the effect on health care expenditures measured. Despite the increase in CAM provider use and a mandatory requirement to include CAM providers in insurance, the overall percentage of insurance expenditures for CAM remains small six years after passage of the requirement. At this time CAM coverage only minimally contributes to increasing health care

expenditures and health insurance premiums in Washington. Future studies should evaluate the trajectory of CAM expenditures and the role of CAM in the health care marketplace; especially whether CAM therapies actually substitute for more expensive conventional care. Only then can the total impact of CAM integration on health care utilization be measured.

Acknowledgements

The authors wish to thank Yuki Duran for her assistance with references.

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Population Demographics and CAM Provider Claims

					E	irollees with Claims by	Provider Lype, %		
	All Enrollees (N)	Percent of Total Population	Any Claim	CAM*	NAM ^{**}	Chiropractor	Acupuncturist	Naturopathic Physician	Massage Therapist
All enrollees	605,368	100.0	83.4	13.7	4.6	10.9	1.3	1.6	2.4
Male	282,969	46.7	75.8	10.8	2.4	9.4	0.8	0.7	1.2
Female	322,399	53.3	90.1	16.2	6.6	12.3	1.8	2.4	3.5
Age, y 18 to 40	260.516	43.0	79.7	12.4	4.2	9.9	1.0	1.5	2.4
41 to 64	344,852	57.0	86.2	14.6	5.0	11.7	1.6	1.7	2.5
County population, i	n 1000s								
< 100	46,538	<i>T.T</i>	83.9	17.4	4.2	15.2	1.2	0.0	2.7
100-399	116,427	19.2	84.4	16.4	4.5	14.1	1.2	1.3	2.6
>=400	442,403	73.1	83.1	12.6	4.7	9.7	1.4	1.8	2.4
Insurance product									
OMH	249,036	41.1	84.7	9.5	2.5	7.8	0.0	0.8	1.1
POS	123,428	20.4	79.9	13.4	5.1	10.1	1.1	2.4	2.6
PPO	232,904	38.5	83.9	18.3	6.7	14.7	1.9	2.1	3.8
Resource utilization	bands ***								
0 (No claims)	100,505	16.6	I	Ι	I		I	I	Ι
-	50,228	8.3	100.0	1.3	0.7	0.6	0.1	0.3	0.3
2	115,371	19.1	100.0	9.6	1.9	8.5	0.5	0.7	0.8
ς,	265,455	43.9	100.0	18.5	6.3	14.6	1.7	2.2	3.3
4	58,906	9.7	100.0	29.1	11.9	23.0	3.6	3.9	6.9
5	13,884	2.3	100.0	33.3	12.8	27.4	4.8	4.2	6.8
* CAM providers i	nclude chiropracto	ors, naturopathic phy	sicians, acupune	cturists, and mas	sage therapists.				

Am J Manag Care. Author manuscript; available in PMC 2006 July 24.

*** Resource Utilization Bands (RUB) are created from diagnostic information contained in the claims data; whereas, other figures in the "All Enrollees" column reflect data received in the enrollment

file. Data is not shown in this category for 1,019 claimants whose diagnostic information was insufficient to create a RUB.

 $^{**}_{\rm NAM}$ providers include naturopathic physicians, acupuncturists, and massage therapists only

Table 2

Predictors of CAM Provider Use

Predictor	Odds Ratio 95% confidence interval		SE	
Female	1.23	(1.21 – 1.26)	0.01	
Age, y				
18-30	1.00		_	
31-40	1.38	(1.34 - 1.41)	0.02	
41-50	1.23	(1.19-1.26)	0.02	
51-64	0.98	$(0.95 - 1.01)^*$	0.02	
County population, in 1,000s				
< 100	1.00		_	
100-400	1.06	(1.03 - 1.10)	0.02	
> 400	0.69	(0.67 -0.71)	0.01	
Insurance product				
НМО	1.00		_	
POS	1.69	(1.65 - 1.74)	0.02	
PPO	2.35	(2.30 - 2.40)	0.02	
Resource utilization band				
1	1.00		_	
2	5.27	(4.85–5.73)	0.22	
3	7.48	(6.89 - 8.12)	0.31	
4	11.49	(10.54–12.52)	0.05	
5	14.35	(13.05–15.78)	0.70	
5	14.35	(13.05–15.78)		

* P=.16. P<=.001 for all others. All values are adjusted for expanded diagnosis cluster category and insurance company.

SE indicates the standard error of the estimated odds ratio.

Table 3

CAM and Conventional Outpatient Provider Visits and Expenditure Data per Enrollee During Calendar Year 2002*

Outpatient Provider Visits and Expenditures per EnrolleeAcupuncture $52,542$ (1.3)#visits $52,542$ (1.3)Visit/user 6.52 6.52 Expenditures per enrollee 86 (0.2)Naturopathy $41,106$ (1.0)Visit/user 4.25 4.25 Expenditures per enrollee 89 (0.3)Massage 852 (0.3)#visits $116,453$ (3.0)Visit/user 7.88 7.88 Expenditures per enrollee 518 (0.7)NAM** 7.52 6.52 Expenditures per enrollee 533 (1.3)Visit/user 7.52 6.53 #visits $481,553$ (12.2)Visit/user 7.27 7.27 Expenditures per enrollee 575 (2.9)Conventional Provider 6.77 6.77 #visits $3.246,793$ (82.4)Visit/user 6.77 6.77 Expenditures per enrollee 5666 (26.5)Additional Expenditure Data 6.77 6.77 Outpatient other 6.77 6.5666 (26.5)Additional Expenditure per enrollee 5.5600 (21.6)Prescription drug expenditures per enrollee 5.5600 (21.6)Prescription drug expenditures per enrollee 5.598 (23.1)Total expenditures per enrollee 5.598 (23.1)Prescription drug expenditures per enrollee 5.598 (23.1)		#	(%)
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	Total expenditures per enclles	\$358 \$2.580	(23.1)

* Expenditures are based on Company B and C experience only. Percents expressed are of total expenditures.

** NAM providers include naturopathic physicians, acupuncturists, and massage therapists only.

*** CAM providers include chiropractors, naturopathic physicians, acupuncturists, and massage therapists.

Table 4

Diagnoses Assigned by Conventional or CAM Providers*

EDC Category	Conventional Provider (n=2,733,912)	Acupuncturist (n=41,655)	Massage Practitioner (n=120,111)	Naturopathic Physician (n=40,847)	Chiropractor (n=435,781)
Musculoskeletal	21.0	72.7	92.7	30.7	99.3
Administrative, General Exam	15.1	-	-	7.4	-
Cardiovascular	9.0	0.9	-	8.1	-
Female Reproductive	8.6	4.3	-	18.2	-
General Surgery	8.2	2.4	-	4.9	-
Skin	7.5	1.0	_	9.6	_
Respiratory	6.5	2.2	_	6.2	_
Allergy	5.3	2.2	-	9.5	-
Neurologic (eg, headache)	5.2	17.9	8.7	13.2	6.2
Psychosocial	4.8	2.0	0.5	4.7	-
Ear, Nose, Throat (eg, otitis	4.4	1.9	-	6.0	-
media, chronic pharyngitis)					
Endocrine	4.4	0.5	-	11.2	-
Gastrointestinal/Hepatic	4.2	2.1	-	12.2	-
General Signs & Symptoms	3.7	3.4	0.8	9.8	-
Malignancy	3.5	-	-	1.2	-
Genito-urinary	2.8	_	-	2.4	-
Eye	2.6	_	-	0.6	-
Hematologic	1.1	-	-	3.9	-
Infections	0.6	-	-	2.5	-
Visits that include an unassigned diagnosis	9.6	4.2	3.6	14.7	7.6

^{*} Data are given as percentage of visits to that provider type with that diagnosis (limited to diagnoses that account for at least 2% of visits to any provider type [diagnoses are not mutually exclusive and do not sum to 100%]), excluding company A and including all visits (inpatient, outpatient clinic or provider office, outpatient other, and allowed and not allowed) at which a provider assigned a diagnosis. The n values represent the number of visits to that provider type. These differ from the visit values in Table 3, in which the data are restricted to allowed outpatient clinic or provider office visits and are based on the experience of all 3 companies. Dashes indicate categories representing less than 0.5% of visits.

** Conditions that often lead to a surgical procedure performed by a conventional provider and not elsewhere classifiable (eg, hemorrhoids, appendicitis, and hernia).