

Special Article

HOUSE CALLS TO THE ELDERLY — A VANISHING PRACTICE
AMONG PHYSICIANS

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ABSTRACT

Background Despite the growth in other home health care services, the number of house calls by physicians has declined dramatically during this century. We determined the frequency of house calls made by physicians to elderly U.S. patients in 1993 and analyzed the characteristics of the physicians and patients involved.

Methods We analyzed a 5 percent random sample of the 1993 Medicare Part B claims data for beneficiaries over the age of 65 who were not enrolled in health maintenance organizations (HMOs). With supplemental information from the Area Resource File and the American Medical Association's Physician Masterfile, we determined how many house calls were made, their cost, and a number of specific characteristics of the physicians and the patients.

Results In our 1993 sample, 36,350 house calls were made to 11,917 of the 1,357,262 patients. When extrapolated to all Medicare beneficiaries over age 65 and not enrolled in HMOs, these figures correspond to 727,000 house calls to 238,340 patients nationwide. We estimated the cost of these house calls to be \$63 million. The patients who received house calls from physicians were older than those who did not, were more likely to die within the calendar year, had higher rates of hospitalization, and were more likely to receive care from other home health providers, hospice programs, and skilled-nursing facilities. Patients residing in rural areas and those in areas with high physician-to-population ratios had an increased likelihood of receiving a house call. The physicians who made house calls were more likely than others to be generalists, osteopaths, older, male, board-certified, practicing in the Northeast, and in solo practice.

Conclusions A very small percentage (0.88 percent) of elderly Medicare patients, mainly those who are very sick and near the end of life, receive house calls from physicians. (N Engl J Med 1997;337:1815-20.)

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HOME care is viewed as an appropriate response to the needs of an aging population and an increasing number of homebound patients.¹ Between 1989 and 1995, the number of patients receiving care at home under Medicare nearly doubled to 3.5 million, and the number of home health care agencies increased by 50 percent.^{2,3} However, the number of house calls by physicians — formerly the mainstay of home health care — has declined dramatically during this century. There was a precipitous drop after World War II, as house calls fell from 40 percent of all patient-physician encounters in 1930 to 10 percent in 1950.⁴ By 1980, house calls made up only 0.6 percent of such encounters.⁵ Along with the decline in their number, the nature of house calls changed; they went from being a common mode of health care delivery for all patients to a type of care reserved primarily for the elderly.⁶ In 1988, Medicare — the principal agency paying for physicians' house calls — was billed for only 1.6 million house calls.⁷

Despite their decline, surveys document the continued perception among generalist physicians that house calls are a valuable component of patient care, provide personal gratification, and improve patients' satisfaction.⁸⁻¹⁵ With the growth of home health care, there has been a renewed interest in house calls by physicians. This greater interest has resulted, in part, from a recognition of the need for more involvement of physicians in home care and the belief that house calls are the most appropriate type of care for some patients.^{14,16-18} Other developments in the health care marketplace, including greater competition for patients among physicians¹⁹ and the need to train physicians in home care,²⁰⁻²² have also increased interest in house calls by physicians.

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We used 1993 Medicare claims data to determine how many house calls were made to elderly Americans during that year and to identify the characteristics of patients who received house calls and physicians who made them, the cost of these services, and factors associated with physicians' going to patients' homes.

METHODS

We analyzed a 5 percent random sample of Medicare beneficiaries listed in the 1993 National Claims History File. Patients under the age of 65, disallowed claims, and services provided outside the 50 U.S. states and the District of Columbia were excluded. In addition, Medicare beneficiaries who were enrolled in a health maintenance organization (HMO) at any time during 1993 were excluded because of incomplete claims reporting under that Medicare program.²³ Our final sample consisted of 1,369,179 Medicare beneficiaries.

Claims Data

We defined a house call as an encounter between a patient and a physician in a private residence. We selected claims that had both a place-of-service code for the home and a code for evaluation and management corresponding to house calls (Current Procedural Terminology [CPT] codes 99341 through 99343 for new patients and 99351 through 99353 for established patients).²⁴ The abstracted Medicare claims included demographic data on the patients, diagnostic codes from the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM),²⁵ CPT codes, and the physician's unique provider identification number (UPIN).²⁶ Ancillary services were considered part of the house call if they were coded as taking place in the home on a day for which there was an evaluation-and-management code for a house call and if there was no other evaluation-and-management code in a different setting that could be coupled with that ancillary service. Diagnoses and ancillary services were grouped into a limited number of categories for reporting purposes.^{27,28}

Other Sources of Data

Medicare data were merged with the 1993 Area Resource File by means of location-of-service codes in order to place the provision of services into geographic and demographic context.²⁹⁻³¹ In addition, we used UPINs linked to data from the American Medical Association's Physician Masterfile³² to compare physicians who made house calls with those who did not.

Statistical Analysis

To describe the characteristics of current house calls, we evaluated the distribution of house calls according to the type of physician, characteristics of the patients and physicians, diagnoses, and charges. Logistic-regression analysis was used to identify independent predictors of whether patients would receive house calls and whether physicians would make them. The accuracy of coefficients from the regression analyses was tested by the bootstrap technique.³³ All statistical analyses were performed with use of the Stata statistical package.³⁴

RESULTS

Medicare was billed for a total of 54,559 house calls to patients in the 5 percent sample in 1993 (corresponding to approximately 1.1 million house calls for the entire U.S. Medicare population in 1993). After excluding beneficiaries under the age of 65 (who accounted for 8 percent of house calls),

house calls made to beneficiaries who were enrolled in HMOs (5 percent of house calls), and those living outside the 50 states and the District of Columbia (21 percent of house calls, almost all in Puerto Rico, where house calls remain common), we identified 36,350 house calls made by physicians to 11,917 patients in our sample. When extrapolated to all U.S. Medicare beneficiaries in 1993 who were 65 years of age or older and who were not enrolled in HMOs, these figures correspond to approximately 727,000 house calls made to 238,340 patients nationwide (26.6 house calls per 1000 beneficiaries per year, and 8.8 beneficiaries per 1000 per year receiving house calls). There was a concentration of house calls in the Northeast, where three states (New York, Pennsylvania, and New Hampshire) had rates more than 2 SD above the mean.

The majority of house calls (94 percent) were made to established patients. Ancillary procedures, 60 percent of which were diagnostic studies and 12 percent of which were immunizations, were performed in the course of 6.5 percent of house calls. Of the mean allowable charge per visit (\$86.80), \$47.10 was for evaluation and management and the remainder due to charges for these ancillary procedures. On the basis of these figures, we estimate that in 1993 Medicare spent \$63.2 million (roughly 0.2 percent of all Medicare expenditures for physicians' services³⁵) on house calls for elderly beneficiaries not enrolled in HMOs in the 50 states and the District of Columbia.

Patients

The most common indications for house calls were hypertension and its complications (11.5 percent), congestive heart failure (7.5 percent), coronary atherosclerosis (6.3 percent), chronic obstructive pulmonary disease (4.7 percent), diabetes mellitus (4.4 percent), osteoarthritis (3.2 percent), and cerebral vascular disease (3.0 percent). Only 0.42 percent of house calls were made on the date of death. Table 1 compares the 11,917 patients who received house calls with the remaining 1,357,262 Medicare patients in our sample.

Of the 84,958 patients in our sample who died during calendar year 1993, 0.5 percent received both house calls and hospice care, 2.9 percent received house calls but were not enrolled in a hospice program, and 7.3 percent were enrolled in a hospice program but did not receive house calls. For those who had received house calls but were not enrolled in a hospice program and who subsequently died in 1993, the most common major diagnostic group was circulatory disorders (38 percent, nearly identical to the 41 percent for patients receiving house calls in general). However, nearly half the patients who subsequently died who had received both house calls and hospice care had cancer (46 percent,

TABLE 1. CHARACTERISTICS OF MEDICARE BENEFICIARIES WHO RECEIVED HOUSE CALLS AND THE GENERAL MEDICARE POPULATION.*

CHARACTERISTIC	PATIENTS RECEIVING HOUSE CALLS (N=11,917)	PATIENTS NOT RECEIVING HOUSE CALLS (N=1,357,262)	ADJUSTED ODDS RATIO (95% CI)†
Age (yr)‡	82.1±0.08	75.0±0.01	—
Female sex (%)	70.7	60.4	1.21 (1.16–1.26)
White race (%)	90.1	85.5	1.52 (1.43–1.62)
Death in 1993 (%)	24.7	6.0	3.05 (2.92–3.19)
Admission to the hospital in 1993 (%)	50.5	20.4	3.05 (2.94–3.16)
Admission to skilled-nursing facility in 1993 (%)	11.4	3.0	2.32 (2.18–2.46)
Receipt of home-health-agency services in 1993 (%)	47.4	8.7	6.76 (6.51–7.02)
Enrollment in hospice in 1993 (%)	4.6	0.57	6.41 (5.85–7.02)

*Beneficiaries younger than 65, those enrolled in HMOs, and those living outside the 50 states and the District of Columbia were excluded from our sample. Plus-minus values are means ±SD.

†Odds ratios were calculated as the likelihood of receiving a house call among the patients with the characteristic in question divided by the likelihood among those without that characteristic. Odds ratios have been adjusted for age, sex, and race. CI denotes confidence interval.

‡P<0.001 for the comparison between the groups.

as compared with 6 percent for patients receiving house calls in general).

After adjustment for age, sex, and race, we found that patients who resided in three Census regions — the Northeast, West, and Midwest — were more likely to receive house calls than those residing in the South (odds ratios: Northeast vs. South, 2.9 [95 percent confidence interval, 2.8 to 3.1]; West vs. South, 1.3 [95 percent confidence interval, 1.2 to 1.4]; Midwest vs. South, 1.2 [95 percent confidence interval, 1.1 to 1.3]). Other factors associated with a greater likelihood of receiving house calls included residing in an area with a physician-to-population ratio greater than 1 SD above the national average (odds ratio, 1.4; 95 percent confidence interval, 1.3 to 1.5) and living in a predominantly rural area (odds ratio, 1.2; 95 percent confidence interval, 1.1 to 1.3). House calls were less likely to be made to patients residing in areas with a mean per capita income greater than 1 SD above the national average (odds ratio, 0.7; 95 percent confidence interval, 0.6 to 0.8) or to those in areas with Medicare inpatient utilization rates (i.e., Medicare bed-days per capita) more than 1 SD above the national average (odds ratio, 0.9; 95 percent confidence interval, 0.8 to 0.9). Variables related to the area of residence that were not significant predictors included the percent-

age of the population enrolled in managed-care plans, the rate of outpatient visits, the rate of emergency room visits, the proportion of generalist physicians, and the ratio of physician's assistants and advanced-practice nurses to the population.

Physicians

After we excluded 1683 visits (4.6 percent of the total) that were coded as performed by multispecialty groups (for which there were no further data on the physician's specialty), 87 percent of house calls to elderly Medicare patients were provided by generalist physicians — that is, internists (including geriatricians), family practitioners, and general practitioners (Fig. 1). Other specialties individually accounted for less than 2 percent of the total number of house calls.

Of the 7846 physicians identified as performing house calls in our sample, we used the UPINs to match data for 7621 (97 percent) from the American Medical Association's Physician Masterfile. Characteristics of physicians who made house calls, as compared with colleagues who did not (after the exclusion of physicians who were in training, those in specialties in which physicians did not make house calls [such as anesthesiology], and those not actively engaged in patient care [such as pathology]), are shown in Table 2. Physicians with training in geriatrics were the most likely to make house calls, although their absolute contribution remains small because they constituted less than 2 percent of the physicians in our sample.

DISCUSSION

The estimated 1.1 million house calls for which Medicare was billed in 1993 represent a decline of 31 percent since the 1988 estimate of 1.6 million.⁷ That decline is continuing, with a further reduction of 12.3 percent in the number of house calls billed to Medicare to 984,000 in 1996, despite an increase in the average reimbursement for evaluation and management, from \$47 in 1993 to \$64 in 1996, according to data provided by the Division of Health Care Information Services of the Health Care Financing Administration.³⁵ The 27 house calls made per 1000 patients per year in our study is dramatically lower than the comparable figure in England, where a recent study found 299 house calls per 1000 patients per year (accounting for approximately 10 percent of all patient-physician encounters) and 3009 house calls per 1000 patients per year for persons over 85 years of age.³⁶

We found that patients whom physicians saw in their homes had more hospital admissions and admissions to skilled-nursing facilities and more often received care from home health agencies. Other studies have found an association between physicians who make house calls and referrals to home

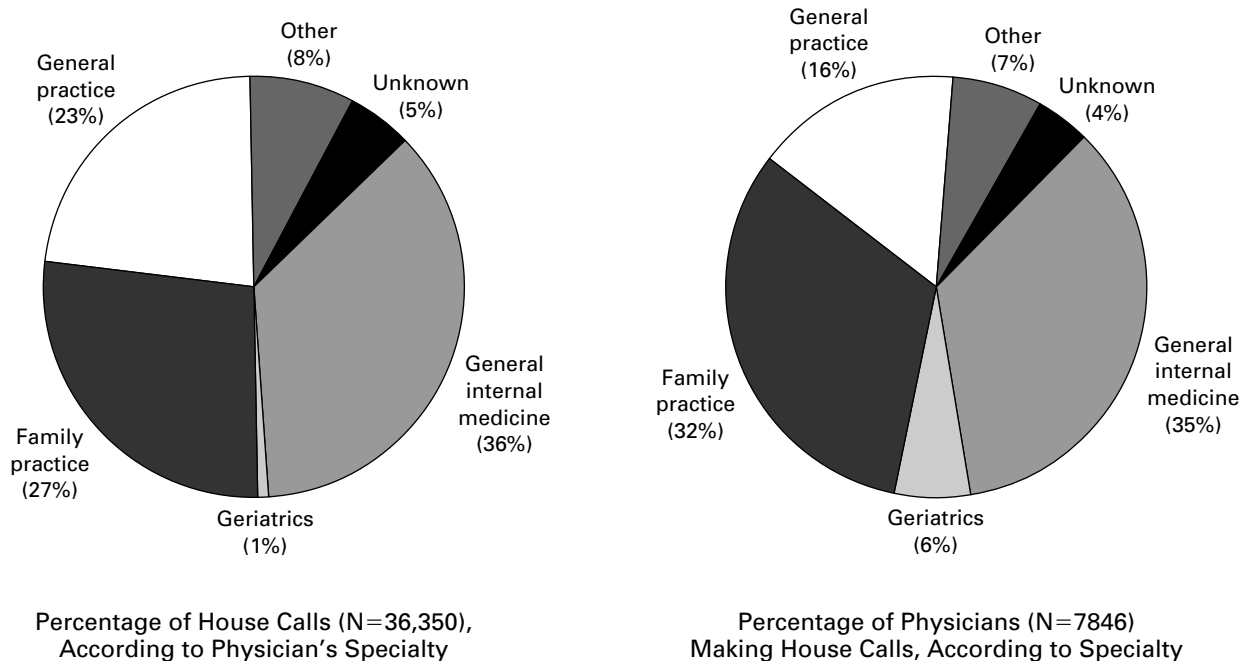


Figure 1. Specialties of Physicians Making House Calls to Elderly Medicare Beneficiaries.

Because 1683 house calls were coded as being provided by multispecialty groups, no information on the individual physician's specialty was available; for these house calls the specialty is shown as "unknown."

health agencies, and the leading diagnoses listed in claims for reimbursement for house calls are similar to those for all home health care expenditures by Medicare in 1993.^{15,37,38} Thus, house calls by physicians complement home health care services from other providers.

The high mortality among those receiving house calls is consistent with the findings of others that terminal care is a leading reason for the house calls.^{14,16} Our findings suggest that house calls by physicians may substitute for hospice care of elderly patients with a terminal illness when the prognosis is relatively uncertain, as in the case of patients with congestive heart failure or chronic respiratory disease, whereas hospice care is more common for patients with cancer.³⁹

House calls were more frequent in the Northeast than elsewhere, and physicians in that region were more likely to perform house calls than their colleagues elsewhere. This finding is consistent with the results of a survey that found that the fact that house calls are common in a community was the factor most strongly associated with physicians' making them.¹⁴ As in two national surveys of physicians,^{14,15} we found that elderly patients residing in rural areas were more likely to receive house calls than their suburban and urban counterparts. That patients residing in areas where the rate of use of inpatient care was high were less likely to receive house calls might

suggest that house calls decrease utilization and expenditures for individual patients by replacing care given in other settings. Studies of comprehensive in-home geriatric assessments in the United States and of house-call practices in Europe indicate that this may indeed be the case.⁴⁰⁻⁴²

We identified a number of conditions that favored a continued decline in house calls by physicians. General practitioners account for only 12 percent of the generalist physicians providing care to adults, yet they account for 26 percent of the house calls made by generalists. As the general practitioners retire, their absence will contribute to a further decline in the frequency of house calls. The decreasing proportion of physicians who make house calls among those who recently completed training and the near-disappearance of solo practice may result in still fewer house calls for the elderly over time.

The relatively low reimbursement for house calls is commonly cited as another deterrent to this form of care.^{14,15} Before the introduction of reimbursement according to the resource-based relative-value scale, the reimbursement for a physician's house call was as low as \$29.⁴³ In 1993 the number of relative-value units assigned to the most common type of house call — one to an established patient with an illness of moderate complexity (1.61) — was slightly higher than for an office visit (1.52), an emergency room visit (1.49), or a hospital visit for the same

TABLE 2. CHARACTERISTICS OF PHYSICIANS MAKING HOUSE CALLS.*

CHARACTERISTIC	PHYSICIANS MAKING HOUSE CALLS (N=7621)	PHYSICIANS NOT MAKING HOUSE CALLS (N=296,218)	ADJUSTED ODDS RATIO (95% CI)†
Age (yr)‡	49±13	44±13	—
Age <40 yr (%)	22.8	37.9	0.59 (0.50–0.70)
Male sex (%)	92.0	82.8	2.0 (1.7–2.5)
Solo practice (%)	49.2	28.1	2.4 (2.1–2.8)
Board-certified (%)	55.6	62.6	1.3 (1.1–1.4)
Region of practice (%)			
New England	10.1	6.1	2.3 (2.1–2.5)
Middle Atlantic	31.9	16.7	2.5 (2.3–2.7)
East North Central	14.9	15.6	1.1 (0.97–1.2)
West North Central	5.0	6.6	0.78 (0.69–0.88)
South Atlantic§	15.2	17.8	1.0
East South Central	3.3	5.2	0.64 (0.55–0.74)
West South Central	4.6	8.9	0.53 (0.47–0.60)
Mountain	2.7	5.7	0.53 (0.45–0.62)
Pacific	11.9	16.1	0.88 (0.80–0.97)
Osteopathic physicians (%)	10.1	6.6	1.6 (1.4–2.0)
Generalists (%)	83.0	49.4	8.1 (6.8–9.8)
Geriatricians (%)	6.1	1.6	18.3 (14.0–23.9)

*Physicians in specialties in which physicians did not make house calls, those in training, and those not actively engaged in patient care were excluded. Plus-minus values are means ±SD.

†Except for region, for which the reference category is specified, odds ratios were calculated as the likelihood of making a house call among the physicians with the characteristic in question divided by the likelihood among those without that characteristic. Odds ratio have been adjusted for age and sex. CI denotes confidence interval.

‡P<0.001 for the comparison between the groups.

§Physicians in this region served as the reference category.

type of patient (1.45). However, the difference in remuneration, amounting to approximately \$3 per visit, cannot compensate for the inefficiency and direct costs of traveling to patients' homes. Skilled nurses (\$97 per visit), physical therapists (\$99 per visit), speech therapists (\$101 per visit), and occupational therapists (\$102 per visit) all received higher average reimbursement for home visits than physicians.³⁷ Only a home health aide (\$61 per visit) was compensated less well than a physician (\$87 per visit) for visiting a patient at home.

Our finding that physicians were more likely to make house calls in areas with a high physician-to-population ratio is similar to that noted in a European study of house-call practices.⁴⁴ Increasing competition among physicians could result in a future resurgence of house calls in U.S. markets that have a relative surplus of physicians. Although the limitations of the data prevented us from examining house calls to patients in Medicare managed-care systems, the growth of those programs may provide a strong incentive to increase house calls by physicians in the future if they lead to net savings.

The primary limitations of our study are those in-

herent in the data bases we used. Although it is likely that pediatricians are important sources of care in the home, the sampling frame limited our focus to house calls to elderly patients. Nevertheless, surveys indicate that over 90 percent of house calls by physicians are made to elderly patients and thus would have been captured by our sampling method.⁶ Reliance on only a calendar year's worth of data could have resulted in underestimation of the association of house calls with end-of-life care for beneficiaries. Our comparisons among physicians are limited because the physicians who did not make house calls to our 5 percent sample of beneficiaries may have made house calls to patients in the other 95 percent of the Medicare population. Our sampling method favored the identification of physicians who made the highest number of house calls as those making any house calls, leading to a conservative bias in the identification of characteristics associated with physicians making house calls. Coding mistakes are another potential source of difficulty, but our requirement that both a code for the home as the place of service and evaluation-and-management codes corresponding to house calls be listed should have eliminated most errors. It is also possible that some physicians do not bill for house calls and provide such care on a pro bono or cash basis to patients for whom these services would not be covered by insurance. This factor is unlikely to have had a substantial effect on our results, however, because 99 percent of aged Medicare enrollees had supplemental medical insurance in 1993, and it is likely that the service-intense population receiving house calls from physicians would easily reach their \$100 deductible under Medicare Part B.³⁴

Recent trends in health care may favor at least some increase in house calls. These include more competition in the physician work force, leading to the growth of alternative practice settings such as the home; the growth of the field of geriatrics; an aging population for whom house calls may be appropriate; the availability of mobile technology; and increases in reimbursement.^{10,20} Exempting house calls by physicians from the Part B deductible, as was done for other home health services, and the introduction of house-call practices into the curriculum for residents in generalist fields are policy options that could also promote an increase in house calls. Before such policies are adopted, however, it is important to determine the relative value of house calls and alternative home care services in terms of cost, safety, and effectiveness. In the interim, house calls by physicians will survive in U.S. health care only if it is recognized that house calls are a vital part of medical care, a link to the past, and a unique opportunity for service, commitment, and compassion.

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